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Orthodontia
and
Oral Surgery

*A Monthly Journal Devoted to the Advancement of the Sciences
of Orthodontia, Oral Surgery, and Dental and Oral Radiography*

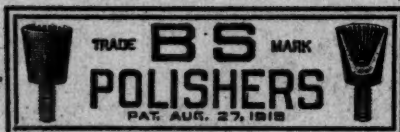
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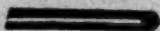
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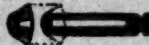
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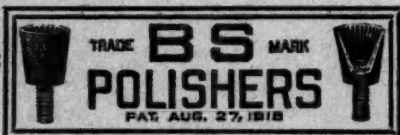


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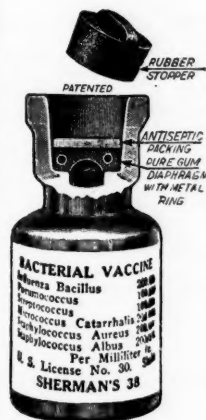
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VOL. VII

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No. 8

ORIGINAL ARTICLES

PRESIDENT'S ADDRESS BEFORE THE ALUMNI SOCIETY OF THE DEWEY SCHOOL OF ORTHODONTIA, APRIL 25, 26, 1921, ATLANTIC CITY, N. J.

BY SYDNEY W. BRADLEY, M.D.S., OTTAWA, CANADA

TO begin an address with an apology is bad form I presume, but when this address was completed and I had reread it I realized that I had not expressed any new thoughts in it. But if the ideas are old but worth while I believe they will bear repetition, and the thoughts expressed in this essay are those of an orthodontist who has tried to, during the past six years, evolve with the evolution of orthodontics.

Our meetings heretofore have been gatherings marked by an enthusiasm and seriousness of purpose worthy of the problems which we had under consideration, and I know this meeting will be no exception. The desire of our alumni to keep abreast with the times as our science advances and that "esprit de corps" which prevails among its members argues well for this and future meetings. Our membership has increased so during the last few years that it is now most difficult to remember the names of all the newer members. I trust they will take a very active part in the discussions of the essays and feel at liberty and not too timid about asking questions. These meetings are particularly for novitiates in orthodontia. Perhaps the older, wiser men may smile at our ideas and questions, but there is one splendid way to get on the right track—find out what the wrong method produces. You will then accept the right principle with a feeling of pleasure and gratitude.

To our visitors I extend a warm welcome and trust mutual benefits may result from our fellowship during the meeting.

When you elected me your President at the Chicago meeting last year, I failed utterly to express my appreciation of the honor you had done me, but in my heart I was appreciative, not only because I prize the personal compliment paid me, but because by me it was regarded as a compliment you generous-hearted Americans wished to pay a citizen of your neighboring country to the

North. It was I believe an expression, if of only a very very small minority, of that good will which prevails in this glorious Republic towards Canada and Canadians.

I never feel a stranger in a strange country when I cross the border, because in the atmosphere of your country and of my own, everyone is born and bred under the common law of England and those principles of Justice and Liberty which the English-speaking race has believed in and carried with them wherever the English tongue is spoken. Differences of opinion on national questions are bound to arise from time to time between your country and mine, but they are differences which I believe can always be settled amicably in spite of the Jingoism we have in both countries. The fact that there is a boundary line of three thousand miles between us, without military or naval protection of any consequences, shows the world that mutual confidence exists, due I believe to the fact that the great majority in each of our nations are of Anglo-Saxon heritage.

The world eruption is over and it behooves all of us in our national and local, civic and social life to consider ourselves under a moral obligation to render the best service that in us lies to the betterment of our country and community.

Our specialty appears to be going through much the same throes of unsettlement at the present time that everything else of importance is going through. When orthodontists who have practiced from fifteen to twenty-five years or even longer, are still at variance over some of the primary principles of our science, what are we younger orthodontists to think or do? When men of reputation say that following the orthodox teaching of securing normal occlusion permanent results are not assured, it makes some of us think that perhaps our methods of procedure need treatment. When another eminent authority says the only proper way to secure permanent results in certain cases of distor mesiocclusion due to heredity is by extraction, and we are taught, and I personally believe, it is wrong to extract except under most unusual circumstances, whom are the younger men to follow to secure the maximum of effective results? Personally the most disheartening, discouraging and puzzling cases that present for treatment are those where permanent teeth have been removed or where these teeth are missing. In cases like these you are not nearly so sure that your predetermined method of procedure and finished results will be satisfactory. We may say close up these spaces where it appears feasible to do so, but there are many cases particularly with the teeth of the mandible, where it is next to impossible to do so. These spaces will close themselves in time, but the tooth movement is not usually the way we would like it. Very often, I am thinking now of the loss or absence of the second mandibular premolars, the anterior teeth will drift distally whereas you wish to move the molars mesially. In a few of such cases I have now in mind I found this a most difficult thing to accomplish; I find it difficult to carry the molars mesially in an upright position while it appears to be quite easy for the anterior teeth to move bodily distally, leaving a space between the upper and lower incisors. It is easy enough to tip the lower molars and draw them mesially that way but we do not wish to do that.

In our specialty we need broad-minded men who will not follow any one-man methods, but select the best thoughts and designs from all and apply them in the treatment of their individual cases. There is no specific method to treat each of the cases that may come under our observation, only general principles apply. We should use the eclectic method which means following the best general principles but using individual initiative in the details of treatment. I believe that there is a place for all the different appliances with but few exceptions, and if we can select the best method and appliance to treat the case in hand we are well on the way to a successful termination. But let us remember the best possible appliances for a particular case will not correct that case, it is the mind and the hand guiding it that achieves the results. In our zeal to select the best appliances we must not overlook the underlying causes of the malocclusion. There is the great danger of drifting too much into the realms of appliance making and forgetting the study of etiology and nutrition. The man with an extensive orthodontic practice has not the time to study etiology except by personal observation of his patients. This after all, is really the best way to study it. It is not abstract knowledge. If we are going to make real advances in our work it will be principally along prophylactic lines, by paying more attention to the nutrition of our patients and to the environment of the teeth; a well balanced diet, suitable to the age of the child, clean teeth and healthy contiguous parts, gums, throat and nasal passages, and no bad habits.

I realize more and more the hopelessness of correcting malposed teeth and not removing the contributory causes, some of which are oftentimes most obscure. Impaired breathing not corrected, means failure in the vast majority of cases. If parents refuse to have the child's throat cleaned up it is not advisable to begin orthodontic treatment. Take also the anemic undersized and apparently underfed children which sometimes present for treatment; very often too from the wealthy and better class of people. The alveolar structure of these children does not respond to mechanical stimulus as does that of a healthy child. It is most difficult to create cell activity and the process of moving teeth for these patients resembles more the movement of teeth in the tissues of persons who are past the growing period. Retention of these cases is prolonged, and you are not sure of permanent results unless during the period of treatment or of retention the child's health and growth be brought to normal. Undesirable habits must be discontinued to have satisfactory and permanent results. If a child persists in thumb or tongue sucking, lip biting, or any habit which was a factor in causing the malocclusion and does not give it up for good, permanent results are impossible. Lack of cooperation of patient or patient's parents during the treatment period also spells failure. Parents sometimes lose interest and fail to see that the orthodontist's instructions are carried out in the home treatment. If such a condition be not remedied you might just as well remove the appliances and stop treatment, for you are wasting your own time and the parents' money and accomplishing little or no good.

I would like to touch briefly on the subject of cooperation between the dentist and orthodontist. We cannot deny that our work is most intimately

connected with that of the family dentist, and when we are asked to consult with the dentist concerning a case of malocclusion let us gladly give our advice frankly and freely. Very often it will be free, very free, but that should not deter us in carefully looking over the case and advising the patient or parents the best method of procedure. Let us above all things not assume that "holier than thou" attitude towards general practitioners and feel above communicating with them. Let us be absolutely honest with them in our advice, being particular to emphasize that there is no royal road to successful results in orthodontia, that there are no secrets that we wish to hide; that we are willing to assist them in any way we can. At the same time I do not think it is advisable to undertake cases for out-of-town patients in conjunction with their family dentists. The dentist's ideals and yours may be different and certainly his ideas on orthodontia are different, and such cases are generally unsatisfactory to all. If the case under consideration be such that you think he can carry it to a successful termination with "store" appliances, advise him what to get and do and help him all you can, but keep your hands off if you wish to avoid trouble. Preach against and kill that idea which should have died long ago that "Leave the case for a while and perhaps the teeth may correct themselves." Ask the dentists to send their cases early, that you may assume the responsibility of commencing the correction at the proper time. Let the Golden Rule be the guide in our relations with the general practitioner. If we do, those relations will be most happy and results best for all concerned.

Returning to appliances, I wish to make some remarks which I believe will benefit the younger members particularly. Precious metal appliances are much to be preferred to those of base metal. Neater appliances can be made and accurate control of the temper of the material obtained. Technic will improve with the use of precious metals. Do not go half way in this; either use one or the other. To combine them means trouble and annoyance. Caries may develop more rapidly under precious metal appliances, but I am not so sure of this. It is impossible to keep some teeth from decaying, no matter what is used, due to lack of cooperation of the patient and parent. I found that all the base metals corroded more or less in some mouths and in the long run were more difficult to manage and more unsatisfactory than gold-platinum. I also believe that to ensure stable results in many cases we must resort more and more to bodily movement of the teeth, putting both crown and root end exactly where you want it, not depending altogether on occlusion to accomplish this. To do this most effectively I have found no better appliance than the pin-and-tube, using half-round pins as described by Dr. George Grieve in his paper at our meeting last year.

Before closing this chaotic and perhaps pessimistic address let me say that all the improved appliances and all the new "stunts" brought out from time to time and shown at our meetings will help us greatly, but will not counterbalance careful, painstaking and conscientious efforts. Orthodontia is not an easy specialty. It is not the specialty for a man who is always in

a hurry. It requires study, study, study and high technical skill to be even fairly successful.

Let us all be as good orthodontists as possible. By so doing we shall not only be personally benefited professionally and financially, but we shall elevate the status of orthodontia in the eyes of the general practitioner and also in the estimation of the laity. Let the Alumni of our school in particular be among the best and most successful practitioners. By being successful, I do not mean success in the accumulation of wealth, or success in reaching the heights of eminence, but in producing more efficient masticatory organs, more beautiful faces and healthier bodies for those patients who come under our care, enabling them to be better and more useful citizens. We owe it to our school, our teachers and our science. Every careless, lazy alumnus who is not interested in his work discredits our school, our teachers and our specialty. Every alumnus who is a good orthodontist honors our school, our teachers and our science.

Let me close by expressing my thanks to the members of the various committees whose work has made this meeting possible, particularly I would mention Drs. Oliver, Fisher, Dewey and our splendid and enthusiastic secretary Dr. Burke.

THE RELATION OF THE PHYSICIAN TO THE ORTHODONTIST*

BY DR. J. B. BILDERBACK, PORTLAND, ORE.

UNFORTUNATELY in the past there has been but little team work between the dentist and the physician. If you will look up the literature you will note the lack of cooperation.

In 1913 the Pediatric Societies of New York and Philadelphia invited a number of eminent dentists to one of their meetings. Several wonderfully instructive papers were read by the dentists and discussed by the pediatricians. However, the hopes built up at that time for closer cooperation have fallen short of realization.

There are three men that should work in close cooperation. They are the orthodontist, the rhinologist and the pediatrician.

When the orthodontist sees the child, for the first time, the hour has passed when he can do anything but attempt to remedy a malocclusion. While you must go on with the work of correction as long as you live, yet at the same time we must seek to develop greater interest and effort among pediatricians and orthodontists in the work of prophylaxis.

To the pediatrician, more than anyone else, falls the responsibility of endeavoring to give the child a good set of teeth. Our contract with the child starts very frequently at an early age, often at birth, and it is absolutely under our care for the first few years of life. Every effort should be made for maternal nursing, because while our knowledge regarding artificial food has advanced, nothing can take the place of breast feeding. Nature has intended every species to nurse its offspring. If this is supplemented at the proper time by accessory foods that require mastication then the proper start has been made toward a good set of teeth and normal jaws.

If it is possible, we should go a step farther, back to the mother; in fact we would like to go back two or three steps to the grandparents, but as that is impossible we should enlist the interest and cooperation of the obstetrician, so the mother during pregnancy will be properly fed.

There are so many angles to medicine that it is difficult to avoid conflict at times between different specialists.

For instance, while the orthodontist is looking forward to the teeth of the child, the obstetrician is rightly thinking of the welfare of the mother. Consequently, in order to avoid complications at pregnancy, particularly in women who have a contracted pelvis, the obstetrician curtails the diet of the mother in order that the child may be small. It frequently happens that it is

*Read before the Pacific Coast Society of Orthodontists, Portland, Oregon, Feb. 16, 17, and 18, 1921.

born underweight and poorly nourished, having been deprived of nutrition during a very critical time in the formation of the skeleton and teeth.

With increased cultural refinements there is a lack of mineral salts in the nutrition. In the preparation of foods, particularly vegetables, the necessary salts are extracted by boiling, and thrown away, also children are given too finely refined flour in their bread.

We are living in a soft age, and this is particularly shown in the foods given children of the better classes during the last twenty years.

It has generally been taught, particularly in books on infant feeding for lay circulation, that a child's diet should consist of milk, mush and broth up to the 12th and 15th month, foods, as can readily be seen, are swallowed but require no mastication.

We now believe that this has been a mistake, that babies not later than five months should be given bones, hard crusts to bite on so as to help develop a good biting jaw and the bones of the face; that they should be encouraged to chew their food in the early months so as to develop the habit, because if a child has been kept on soft foods, and sucks its milk from a nipple until it is a year old, great difficulty will be experienced in getting the child to masticate.

Frequently children are brought to us that have been kept 18 months to two years on a bottle. They are living almost entirely on milk. They are markedly anemic and they will absolutely refuse to take solid food, unless the milk is taken from them and they are starved to it. Sometimes it may take several days, often a week, before a child will allow solid food to be placed in its mouth. These children are professional bottle drinkers and whether from the long use of the nipple or lack of mastication they nearly all have malocclusion and need the services of an orthodontist.

On account of our intimate contact with the child, physicians should watch for early decay of the deciduous teeth and work in close cooperation with the dentist to save them, to prevent malocclusion, and to keep the child's nutrition up, because when a child has lost several teeth and also has a number of carious teeth, he is generally below par physically and the orthodontist cannot get the best results unless the patient is physically fit.

Man has gradually come to rely upon the brain instead of the muscle in advancing himself. He has thus, through less use, allowed many of the formerly important organs to assume a less valuable rôle in the human economy.

This is true of the teeth, and consequently we find a greater degree of susceptibility existing than formerly.

Man, too, has less need for his olfactory and auditory senses, he being no longer dependent for existence upon the search of game in the open. This has brought about a greater degree of degeneration, especially in the size and freedom from obstruction of the nasal tract. Consequently upon this results a greater degree of deformity of the maxillary arch and a more pressing need for correction of these conditions. One very important consideration in the prevention of deformity is the preservation of the deciduous teeth.

There is probably no one condition, but several factors acting as a vicious circle that produce malocclusion. Does mouth breathing produce a high dental

arch or does a high arch produce conditions that make mouth breathing necessary?

It is a fact that uncivilized races have a far better developed dental arch and less malpositioned teeth than the civilized races. It is also well known that their foods are more in the natural state requiring much more mastication, than the foods of the civilized races. We all know that our foods are so well prepared as to require little or no exercise of the teeth to prepare them for swallowing and that it is very hard to masticate food where mastication is not required.

In a most excellent article, McClanahan of Omaha, emphasizes the fact that, "the removal of the adenoids will not cure the mouth breathing unless there is a normal coaptation of the teeth which implies there is a normal development of the maxillary arch.

Then the nasal fossæ are normal in size in so far as bony structure is concerned, with room for the free flow of air into the vault of the pharynx unless some growth or inflammatory condition be present.

In many cases of adenoids that have been unsuccessfully operated upon for the relief of mouth breathing, it has been found that there is bad coaptation of the teeth as well as a distinct evidence of the maldevelopment of the superior maxilla and the other bones in intimate relation to it, namely the vomer, palate and turbinate bones.

The usual type of malformation is a deep hard palate, either circular or angular, a retraction of the mandible, due to its being drawn downward and backward and consequent apparent lengthening and actual narrowing of the superior maxillæ, the upper lip appears short and can be brought in coaptation with the lower lip only by strong muscular effort.

This is the typical adenoid face but the appearance is due to the defective development of the upper jaw. When there is an obstruction in the nasal fossæ the result of the high arched palate, narrowing its lumen, or a deflection of the nasal septum, or thickening of the turbinates or growth, one and all of these conditions lessen the capacity of the nose as a breathing organ.

In these cases but slight relief will follow the removal of the adenoids because the obstruction is in front of the vault of the pharynx.

It is unfortunate that we did not have expert rhinologists and orthodontists during the middle ages. The adenoid face has existed for many centuries as is shown in many oil paintings of the 15th century, particularly those of the Royal family of Spain, notably Philip the Second. Who knows but what this monarch's mouth breathing and malocclusion were responsible for his being an incorrigible, and for his cruelty and persecution of the inhabitants of the Netherlands. The map of the world might have been changed if Philip as a boy had had his adenoids scraped out and his teeth straightened.

In conclusion, we should encourage breast feeding, insist on the child having food that requires mastication early in its life. If it has nasal obstructions, due to adenoids, have them removed at once, even though the child is only a few months of age and lastly, if the child shows a tendency to maloc-

clusion get him in the hands of the orthodontist as soon as the condition is recognized.

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McClanahan: Mouth Breathing, Archives of Pediatrics.

DISCUSSION

Dr. Wm. Cavanagh, Portland, Oregon.—I should like very much to have had Dr. Bilderback's paper two or three days ago in order that I might discuss it with a reasonable amount of intelligence, but since I have heard him before, I felt I pretty nearly knew the line of thought he would have to take. That is in no sense meant as a reflection on the Doctor. He has presented the very things we are glad to listen to, inasmuch as he hits the nail right on the head. We know we are at a disadvantage in not getting in contact with the patient at the proper age. We do not see the patient soon enough to give the advice the pediatrician is enabled to give. Men in his specialty are called on early to treat the babies, and probably the mothers prior to the birth of the child. Much of our difficulty is due to what occurs before the child is born. It seems to me that we as orthodontists are fighting the natural processes of evolution. We realize there was a time in man's existence when the skull was very much underdeveloped. Prehistoric man is noted for his lack of development in the fore part of the head, and also for the overdevelopment of the jaws, indicating his life was practically physical, and the mental was not developed. We are now passing through that stage of evolution where the brain is being overdeveloped possibly, and the physical, through the fine preparation of our food is underdeveloped. So we are fighting the natural processes of evolution, and I doubt very much whether we can stay the tide. We are able to benefit the individual, but I question whether that benefit which we are able to render that one individual will be carried along into the next generation. There was a time when all abnormal positions of teeth were attributed to inheritance. Then the pendulum swung the other way, and it was attributed to the lack of solid food, mouth breathing, and everything but inheritance; but I still see enough of the parents with the children to note a strong similarity in type. Now if we doubt the influence of inheritance we will go back to the problem of missing teeth. We are familiar with the parents, grandparents, and children who have certain teeth missing, generation after generation. I think this is a positive evidence that certain defects in the dental apparatus are handed down from one generation to the other. I am thinking now of the case of a mother with two teeth missing—they never erupted. Her eldest son had sixteen teeth missing. Rays showed no germs there at all. What will be the condition in the next generation if the same ratio applies? Then, in other cases, it is the same tooth that is missing. For instance, the lateral incisor which is absent in grandparents, parents and child; so we are up against inheritance which is one of the steps in evolution, I think. We are convinced, especially those of us who listened to Dr. Hine the other night, that exercise or vibration is necessary to the proper development and preservation of the tooth, and to the development of the jaws. A child brought up entirely on milk and soft foods may get the elements necessary to the upbuilding of the body generally, but he is not getting that vibration of which Dr. Hine speaks, and which we are all convinced is a necessary thing. Exercise is also essential to preserve teeth from decay and to stimulate the bony development essential to normal occlusion. But children who have passed the age when the deciduous molars have erupted without learning to use those molars are always averse to the formation of habits which involve the vigorous use of these teeth. As a result, where improper methods of feeding are followed out for two or three years beyond the time when solid food should have been given the patient, the habit of just rolling the food over and swallowing it is formed. That is one of the hardest possible habits to break up. It is a difficult thing to encourage the child to masticate his food after forming this careless

habit. As a result of this careless method of chewing these children lack the interdental spaces. These spaces, as we know, must form between the first and second incisors and deciduous canines at or before the fourth to fifth year of age; otherwise the teeth must be crowded into abnormal occlusion. Therefore, exercise next to nutrition is one of the most essential factors in the development of the child. If a child's arms are tied up until five to seven years of age, how well developed will they be? Yet they do practically that same thing when they do nothing but swallow in order to exist. There is another point where the rhinologist is involved. There has always been the argument as to whether mouth breathing precedes narrow, undeveloped maxillary arches, or the reverse, where the narrow mouth and narrow nose is a sequence of the mouth breathing. The mouth breathing seems to have no effect on the lower jaw, except in point of position. The mandible is developed pretty largely through the position of the tongue. Why is it that the upper jaw is the one most largely affected in its shape and development through mouth breathing? Why does it not affect the lower jaw other than in the matter of position? I am speaking of the width of the two arches. The width of the mandibular is rarely affected by mouth breathing. The maxillary arch may be so narrow that the buccal cusps of the premolars and molars occlude within the cusp of the mandibular. Frequently, we find the mandibular arch practically normal with the maxillary as much as three quarters of an inch too narrow. The position of the mandibular is affected, but not its size. I am a confirmed believer in the cooperation of the three branches of practice, that is, orthodontia, rhinology, and dentistry. Much of the malocclusion comes through the neglect of the deciduous teeth. The carelessness in the treatment of the deciduous teeth is responsible for a large percentage of malocclusion of the permanent dentition, and if the pediatrician will bear that in mind, seeing the patient as early as he does, with the four specialties, orthodontia, pediatrics, the nose and throat specialty, and the dentist, all working together we could produce a much better apparatus than most children now have.

Dr. Power, Seattle, Wash.—I would like to ask a question. I do not understand exactly whether the Doctor implied that when the physician in charge of the woman during pregnancy advised a restricted diet in order that the child should not be of too great size or weight for its easy delivery, that the dieting might also be to the extent that it might possibly injure the child in its development. I can see very readily how that could occur, and I ask it as a point of information.

Dr. Scott, San Francisco.—A great deal may be said on this subject. I think the whole thing reverts to heredity and environment. There is a great tendency on the part of the human race and the animal kingdom to eliminate anything that is not used. We probably have examples of that in the third molars, second incisors and often in the premolars. The premolars are absent in many cases. We have heard that the fish in Mammoth Cave have no eyes, because they have no use for eyes. The American Indians in all probability had about as nearly normal occlusion of the teeth as any race of people, so far as we know. Their food consisted largely of common Indian corn, acorns, hazelnuts, and food that required a great deal of mastication. They developed good jaws, although they lacked in brain development. Between 95 and 100 per cent of children below the age of three have normal occlusion. It may be in detailed examination these children did not have their occlusion entirely normal. However, between the ages of three and nine about 95 per cent of them had abnormal occlusion. What is the reason for that? The fact is we cannot advance an entirely satisfactory answer, but it is probably due to the fact that the child up to the age of three takes its food the same as children did one hundred thousand years ago. But our food between the age of three and nine is changed. It is of a different physical character. We blame a great deal on heredity that really does not belong there. The country physician has a large advantage over the city physician as he has seen the children grow up, the fathers, the grandfathers, and maybe the great grandfathers. He may say, "Here is John Smith's tuberculosis coming out through his grandson," for instance. There may be six children in a family, and each one is allowed to suck the thumb and each one is given wrong food, and each in all probability will develop dental trouble. If each one is allowed to do the same thing each will develop the same trouble. So, you see, this is not heredity, but it is the influence of environment on the organism.

Dr. Rogers closed up one side of a puppy's nose, and found that the side that was not closed will develop. The other side does not develop. This is not heredity, it is environment. Because a man has one leg cut off, it does not mean his children will have but one leg. They have been cutting rat's tails off for ages. Every rat has a tail just the same. However, in the case of the dental apparatus, where the teeth are not used they will be eliminated, because of their nonuse, and I think the same thing applies to any other organism. The idea has been advanced that if we keep on riding in automobiles we will not have feet.

Dr. P. T. Meamey, Portland, Oregon.—In regard to the bread that the children are eating today, I think it is a big field for some advancement. I would like to hear Dr. Bilderback's opinion in regard to the home-made products compared with the baker's bread that is being so widely used. It is easier to get the latter, of course, and there is less work involved. The children are eating a great deal of food of this class, devoid of the principle required for bone building.

Dr. Dinham, Portland, Oregon.—Our work should not be limited entirely to correction, but the subject of prevention should have its place in our work. There is the possibility, and indeed the absolute necessity for co-operation between the physician and orthodontist, so far as the food question is concerned. The development of the jaws necessarily depends upon the calcification and proper use of the teeth. But the orthodontist does not get the opportunity of advising the parent as to proper food to give to the child. That is where we note the importance of the better relationship between the physician and the orthodontist. We get the case at a time when correction is necessary.

We do not have the opportunity of seeing the patient during the period when prevention would be relatively easy. So the importance of the relationship between the two professions is of the utmost importance.

Dr. Morehouse.—There are two points which I think the orthodontist and the child specialist should bear in mind distinctly. First, that the physician who has in charge the care of the mother during pregnancy has to my mind been at fault to a large extent in the majority of cases of maldevelopment. The lack of a proper consistency of the tooth structures invites decay at an early age. I think the medical profession would do well, and would assist us more than any of us can realize if they would pay a little more attention to the care of the mother with a view to the welfare of the child. The mother's life in many instances is dependent of course on the other angle of the question, but I do not believe the former point is kept well enough in mind. There is another point on which possibly I am a crank. That is the fact that the muscles of the jaws never are made to perform the functions they were intended for. I try to impress my patients and parents that the bones of the jaws depend for their development just as much on the muscles attached to them, as do the chest and arms and limbs on the muscles that operate them. Orthodontists will remember the experiments of Dr. Hellman relative to breast-fed children and bottle-fed children. I have forgotten the difference in pounds between the bottle-fed and breast-fed children, but with the bottle-fed child the sucking pressure was practically nil, no pounds pressure being exerted, but with the breast-fed child, a great deal of pressure was exerted.

Dr. Bilderback, closing discussion of his paper.—The children's doctor sees the child as a whole, it was not my object to encroach upon Dr. Kistner's paper, but we get these children before the rhinologist sees them. They bring the child in because he is a mouth breather, and we recommend the removal of the adenoids. Many cases are as bad after the operation as before.

In regard to the diet of the mother. Sometimes, as you may know, the obstetrician has to think of the mother, and the diet may be curtailed a great deal. It stands to reason that if the mother is on a limited diet her nutrition may suffer badly and the developing child starting with the microscopic cell is deprived of sufficient nutrition over the period of eight or nine months, during which time the skeleton and teeth are being formed.

Relative to breadstuffs, they have become too refined. We like the nice white bread with the tender steak. Children do not like to eat whole wheat bread, but they should.

If the figures found in the dispensary in Boston that children up to three years have teeth fairly well approximated, then what happens after the third year? If it is true that 85 per cent are right up to the third year, and then the percentage is reversed up to the ninth year, what is the cause? I think chewing and mastication are very important. Could it be possible that the reason the percentage changes is due to the fact that children do not masticate, do not chew enough to develop the bones and muscles of the face? I do not suppose it is due wholly to congenital conditions. It may have something to do with it, however. We are doing all we possibly can to have the mother nurse her babies. Why does not the average modern mother nurse her baby? In primitive countries mothers all nurse their babies. Civilization is making the change. It is due to nervous influences. Dr. Sedgwick of Minneapolis found the mothers of American cities were not nursing their babies. He sent a questionnaire to Doctors' wives and they sent back answers: two months, three months or four months. He had special trained nurses sent to these mothers, showing them how to express the milk, etc. In a little while the breast secreted more milk, the secret of good milking of course, is to thoroughly express the milk from the breast. Now every mother in Minneapolis receives a card, and it is followed up by someone coming and teaching her how to nurse the baby successfully. Consequently, the mothers of Minneapolis are nursing their babies longer than in any other city in the United States.

Do you know that we have a tremendous mortality of infants under one year of age. Three hundred thousand die annually in the United States, two hundred and seventy thousand of them are bottle-fed. While we have learned something of artificial feeding of infants it is not what nature intended. When a mother does not have enough milk we frequently supplement with the bottle. We have to. In a little while the child learns to wean himself. It is so much easier to take it out of the nipple than out of the breast. The child will refuse the breast and depend upon the bottle if care is not taken.

My speaking about breast feeding may not seem pertinent to the subject, but we feel if the child has what nature intended it to have, breast milk, which is supplemented later with foods that require mastication, there is less likelihood of malocclusion occurring.

SUGGESTIONS IN REGARD TO THE USE OF LINGUAL ARCH

BY E. C. READ, LONG BEACH, CALIF.

BECAUSE of the inspiration and help received at the meeting of this Society one year ago when Dr. Mershon was with us and gave us the benefit of his wide experience in the use of the lingual arch I went home determined to try it out more fully, and if possible to master its technic.

While many difficulties have been experienced, the results obtained with its use have been very pleasing and I feel that we have as yet failed to appreciate its wonderful possibilities.

It is more cleanly, not so unsightly, and does not interfere so much with the normal muscular action. It is especially indicated in young children where we have a great many of the temporary teeth present. The slow, gentle pressure of the arch when properly used brings about normal development and one can get the desired change with very little soreness. This is due to the fact that the pressure is constant and that it is not necessary to adjust so frequently.

It may be used advantageously in a majority of cases. The labial alignment wire seems to be a necessity in Class II (Distoclusion) cases but even in some of these the lingual wire may be used in connection with the labial.

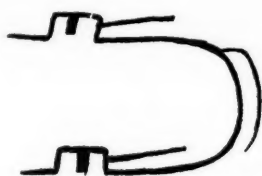


Fig. 1.

One of the most frequent difficulties is the breaking of the wire near the attachment. This is due to the bending of the wire at this point when it moves up and down in the anterior part of the mouth. This can be overcome by the use of bands with a hook to support the wire. These bands may be put on the first premolars or one of the incisors. Very little difficulty is found in this regard on the mandibular arch, but many patients have a habit of playing with the wire, with the tongue, on the maxillary teeth.

One should be very careful and not produce too much pressure and also in adjusting to keep the proper alignment of the posts to the tubes, otherwise it is very trying on the anchor teeth.

To secure proper alignment one should place the pin in position in the tube on the left side and note the relation of the pin to the tube on the right

*Read before the Pacific Coast Society of Orthodontists, Portland, Ore., Feb. 16, 17, and 18, 1921.

side then remove and adjust until the relation seems correct. Then place in position on right side and note relation on left side and adjust until found correct. It is always necessary whenever making any change in the form of the wire to be careful and see that the alignment is correct as there seems to be a tendency to rotate the mesial angles of the anchor molar teeth lingually.

By seeing that the wire is in contact with the premolars and by extending it distally you can secure additional support from the second molar when that tooth is in position.

It is also frequently advisable to solder a short piece of wire about 21-gauge so that it fits snugly against the mesial surface of the first premolar. This will help to prevent displacing molars distally and will give the space gained by the development in the canine and incisor region where we most generally need it.

Very frequently on the mandibular I drop the wire at the bend just mesial

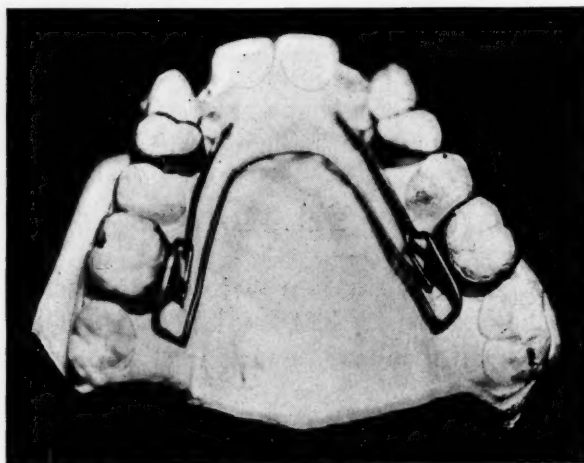


Fig. 2.

to the attachment far apically and use this wire as a base wire to which I solder auxiliary wires of about 20 to 21-gauge, according to length. On each side at the bend just mesial to the attachment, wires are soldered extending along the gingival border of premolars as far as the canines. Also additional wires, such as the case may indicate, are soldered to the base wire and bent so as to engage the anterior teeth. (Fig. 1.)

These wires, with free ends, are very readily adjusted and they may be allowed to remain for weeks without readjusting. This same type of appliance may be used on maxillary teeth as well as mandibular only, of course, carrying maxillary base wire gingival on palate.

I have just placed in position within the last few weeks in three different cases, another form of this gingival arch with which I believe we have more freedom of adjustment and can overcome the tendency to rotate the molar anchor teeth. I will describe it to you and shall be pleased if any see fit to try it out.

In making this appliance, solder the half-round pins to wire about one

inch from end; then bend gingivally, then mesially and carry along gingival margin of premolars to about the canine region and leave this a free end. Distally to the pin, bend the wire up a little above the gingival of second molar and cut wire. Do this for both sides and place in position in tubes on plaster model. Bend base wire to form. This should pass around arch about $\frac{1}{16}$ " above the gingival line and close up against the palate. Cut to desired length and place in position on model and solder to distal ends of wire in tubes. Band first bicuspid and support auxiliary wires with hook. Other auxiliary wires may be used on anterior teeth as the case may indicate. These auxiliary wires very frequently may be used as small as 24-gauge (0.020).

The accompanying cuts with appliances in place on models will give you a clearer idea of the construction. (Figs. 2 and 3.)

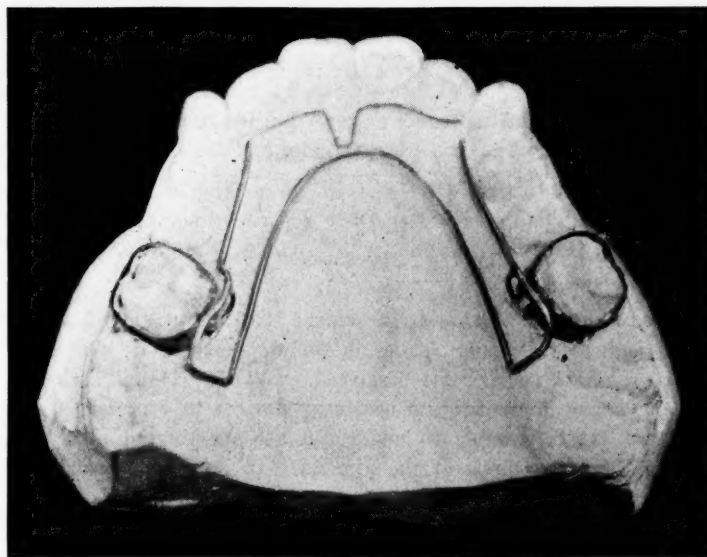


Fig. 3.

Fig. 2 shows an 0.020 auxiliary wire in position to move laterals. The laterals should be banded with spurs to hold wire in place at gingiva.

Fig. 3 shows the premolars banded to aid in holding appliance in place. The spur on the premolar band extends mesially and a short light wire soldered to the arch wire passes above this spur and against the mesial surface of the premolar. This holds the anterior part of the appliance in place and also gives additional support to the anchor teeth when any stress is applied that might tend to displace them distally. All that is necessary in placing into position or in removing is to spring arms lingually just enough to pass spurs.

The appliance is made of 19-gauge (0.036) spring wire. It is not necessary that the arms extending along the premolars should be as heavy as this. In fact they had better be as light as 21-gauge.

DISCUSSION

Dr. Power of Seattle, Washington.—Mr. President. The Doctor sent me this paper some time ago, and I have fully intended writing a discussion, but I have been so busy with

dental legislative matters up in our State, that I have not found time to do so. I visited Dr. Morehouse in Spokane some time ago, and certainly the majority of the work on the lingual arch that I know I received at his hands. Although, I also wish to acknowledge Dr. Baldwin's and Dr. Barker's assistance while there. Dr. Morehouse gave me the use of the coin gold seamless bands in different sizes, and I have been using them, and he showed me how to solder on the half-round tube and how to use the half-round wire. I realize that the lingual arch has wonderful possibilities. I wonder what the Orthodontia meetings of a few years hence will be like? In my own short career I have seen men right about face on orthodontia problems. How a man can stand up and declare by all that is holy that such and such is positively so, and then a few years later on stands up and does not even refer to the former method he advocated, but ignores it absolutely and recommends something totally different, is quite beyond me. I think the new methods are steps in the right direction. I am here to learn. I am working this matter out and am using the appliances, and am meeting with success, and hope to be further along when I return home from this meeting. I thank you very much.

Dr. Mann.—I wish to compliment Dr. Read on his paper. I feel he has suggested two or three points of value to me in the treatment of some of my cases. I think he has improved the lingual arch in many ways.

Dr. Scott.—I have enjoyed Dr. Read's paper. I will say for Dr. Power's benefit that we had six dozen tubes on a piece of shaft 14 inches long, and the fit was very inaccurate.

Dr. Cavanagh.—I want to thank the essayist for getting me away from the Simon-pure concealed appliance. I am glad to see somebody has conceded we may use a band in plain sight in conjunction with the lingual appliance. It will save me considerable trouble. I want to use a band or two occasionally.

Dr. Baldwin, of Spokane, Wash.—It is evident that the object of putting a band on a tooth with spur to engage the finger spring is for the purpose of controlling the force so that the spring or arch will not become displaced. But the lingual arch will work without visible or appreciable force, and needs no accessory devices to overcome displacement caused by excessive pressure. It is possible to make and use the lingual arch and finger springs without resorting to the tying down of the appliance to obtain necessary results. You will accomplish just as much with a more extended treatment and have less trouble in the retention than if you apply the maximum force and have to wait for nature to catch up with the tooth movement that you have accomplished in a short space of time. I will demonstrate at the clinic a very simple means of ligating the arches. There is a way to tie a fine wire around a tooth which will absolutely hold an arch as securely as when forced under a spur on a band. You get with this ligature the same result without the tendency to displace a banded tooth. A displacement will occur sooner or later if you crowd a spring or arch under a spur on a banded tooth.

Dr. Mann.—I want to emphasize slow treatment, lots of time and little force. My best results are the cases where there has been no hurry in the treatment. My shortest retention is the result of a very slight amount of adjustment.

Dr. Morehouse.—I would emphasize the fact that too many of us are prone to try to work this lingual arch too fast. When we started into orthodontia from dentistry, we were too much in a hurry with all of our cases. With the ribbon arch we were too much in a hurry, and we are still too much in a hurry. Dr. Mershon emphasized his belief that orthodontists are poor "waiters." So far as the banding of the teeth is concerned, Dr. Mershon brought out the fact that he found at certain times and in some places it was advantageous to put on bands to help hold the finger springs. I have followed Dr. Baldwin's suggestion as to ligating the arch instead of using bands, and I have found it more satisfactory, though I feel we cannot emphasize too often or too strongly the point on which Dr. Mershon laid so much stress, namely the slow work with the lingual arch, and on the necessity at times of holding these finger springs in position.

Dr. Read, closing discussion on his paper. I thank the members for their very kind

treatment in discussing my paper. Let me emphasize the desirability of using the lingual wire in treating young children. I have a great many patients, five, six, and seven years of age, and because of the constancy of the force of the lingual arch you get normal development much better than you can from a labial arch, which is somewhat intermittent in its action. I think the lingual arch works more in accordance with nature. It is difficult to place bands and tie ligatures about the labial arch on those short, deciduous teeth. It is an easy matter for the ligatures to slip gingivally on the deciduous teeth. The little children are the easiest patients I have to work for and these lingual wires remain in place much better in the case of the very young patient than in those twelve to fourteen years of age. I have a number of patients from a distance that I see not more than once each month. In one case the deciduous teeth are very short, the child is only seven years of age. The appliances on the upper and lower wire attached to the second deciduous molar teeth, the right mandibular lateral was unerrupted, and the central was practically against the canine, and by placing the mandibular arch into position with the finger spring from the region of the molar, reaching underneath the arch, the incisor was carried to the left. It did not require much pressure, or the use of any bands except the anchor bands. Emphasis should be made of the fact that we should apply *less* force, and make the adjustments *less* frequently. In carrying out the incisors, we need these fine wires well up on the gingivae. In carrying the incisor forward it may tend to shorten them somewhat. If we have a band with a spur there we can give the wire a bend to the incisal, and as we carry forward we lengthen the tooth. Without a band the spring would slip incisally. I usually use the .020 wire. Where I carry them above the arch I have the gauge of wire a little heavier. I noticed in the last International Journal, an article by Dr. Porter, of New York, in which he shows a different style of attachment. The first thing I noticed was that in the lower he had carried the appliance away low and used it as a base wire, and I saw how he carried it up on the anterior tooth for the auxiliary spring. This was after I had written my paper and sent it to Dr. Power. It is not exactly the same method, but very similar to the method I have used and described here.

REGULATING THE PRACTICE*

BY T. W. SORRELS, D.D.S., OKLAHOMA CITY, OKLAHOMA

THE word "regulate" has concerned us mostly as orthodontists with the placing of the teeth in their normal relative positions, let us now think of it in a still broader scope for usefulness in the conduct of our practice.

It will be my endeavor to offer for your consideration some suggestions and fundamental principles along this line. If they be utilized and applied in a practical way it will mean better efficiency in the building and maintaining of a practice.

Suggested ideas cannot be accepted and acted upon effectively if there is not a normal body mechanism. It is, therefore, obvious that we follow the generally accepted rules regulating health that are of common knowledge to all.

We frequently hear personalities referred to as a great factor in business. "Personality" is generally accepted as being those individual characteristics which distinguish one person from another. As every personality in this sense is made up of changing materials, each one of us has as many personalities as we have groups of associates whose good opinion we value. To every person, we generally show a different aspect of our nature. This being true, it is important, if we are to be cheerful and optimistic, that those about us the great majority of the time be of this disposition.

To have and to hold an assistant who has little or no regard for your habit or established order of doing things is annoying and is reflected in our dispositions. It is likewise quite as necessary that the assistant have not only the general ability but the interest and desire to do the work assigned him in accordance with your plans.

The doctor whose office is dirty and poorly furnished may build a good practice but he is working under a tremendous handicap. He may be personally immaculate but no one will think it if he lives in an ill-kept office. You may be told that a certain store is the best place to purchase the article you need, but if you find the whole establishment has a general air of shoddiness, it will be hard to believe it, without other suggestive things in the way of a trademark or the like, as being manufactured by a reputable firm, and an article of good quality. We would certainly never patronize the manufacturer of food products who posted his advertisements on garbage boxes.

In these days business is done quickly and first impressions go a long way. The average man or woman does not take time for a careful critical or comparative analysis. A thing is not taken out of its environment and set apart for the purpose of analytical study. Arguments are considered in conjunc-

*Read before the Southwestern Orthodontia Society at Dallas, Texas on March 12, 1921, and the Alumni meeting of the International School of Orthodontia at Kansas City, Mo., on July 15, 1921.

tion with the personality and the appearance of the man who makes them. Events are received in the light of surrounding circumstances. It therefore goes without saying that, if this be true, it is essential that we give due consideration to first impressions reflected by ourselves and the office.

We cannot succeed in our special vocation if our interest fails. This may be kept alive by trying to discover new things in old surroundings or new aspects to everyday tasks. Our postgraduate courses and meetings are especially valuable to us in renewing our interest and desire for better things in connection with the practice of our specialty. By reading, attending lectures and clinics, we may get the inspiration, knowledge and skill to do more effective and efficient work.

Here I wish to offer the following four injunctions by Warren Hilton as working principles in the conduct of business:

1. Determine each morning upon one definite thing worth while that you want most of all to do or obtain that day. The being, or doing or getting of anything worth while can only come as a result of an overmastering desire.
2. Do not admit the possibility of your own inability or defeat. It is the state of your own mind that makes for success or failure. Feel assured of your ability to do things and you can go out among men and win them to your way.
3. Keep your attention riveted on the thing you want and your own ability to obtain it.
4. Act promptly in the line of your desire. By following these rules the habit of concentration may be better established and will foster the faculty of pushing ahead even when the case seems hopeless.

If we are to render our greatest service to the public and the profession, we should take advantage of all available opportunities to further educate them to a greater realization of their responsibilities to the child in general, but more especially to its teeth. How frequently do we have patients referred to us with carious teeth who state they only recently had them examined by their dentist! Another very embarrassing question to answer the patient is, "Why didn't my dentist call my attention to this condition much earlier, as the child has been to the dentist a number of times for work?"

The dentists' dislike for children's work and subsequent lack of interest with the problem of child control is seemingly the principal cause of this condition. By dealing kindly, firmly, honestly, and with the proper tact and patience you will be surprised at what may be done with children.

This may be remedied to a considerable degree if we accept the invitations extended to us to read a paper before the local dental society. The growing tendency to give orthodontia little consideration in dental meetings is extremely detrimental and our efforts should be directed toward awakening interest along this line of work among the general practitioners as the responsibility lies largely upon us.

Our activities connected with the establishment and conduct of a practice have followed one another so naturally that we, from force of habit, have not operated separately the two great distinct divisions of the practice. By mak-

ing the proper distinction between the business part and the professional part it is possible to place the responsibility for a number of things for which responsibility has frequently been misplaced. To conduct our practices well it is essential that we accustom ourselves to two lines of thought, one professional and the other business. Along professional lines it is our duty to develop in knowledge and skill so far as circumstances will permit. In business lines we need only use common sense and establish a proper system of records to classify the operating expenses and receipts. We should further have a system of determining the operating time on the individual case as a guide in basing fees. The business part should be governed by a code of ethics to the same degree as the professional part. The ethics of a well-regulated business are of equally as high a standard as those of a profession.

If we are to keep pace with the times and the developments of further knowledge and skill, we must give the proper attention to the business side of the practice or conditions will not permit of our spending the time and money to attend dental meetings and postgraduate courses. These items should be placed in the expense account and charged to our patients, as for more advanced ability, we should advance our fees to those seeking our services.

During the recent and rapid upward trend of prices it came home to us more forcibly than ever before that if we are to have a properly functioning and profitable practice a strict account must be kept of the cost of doing business.

The value of our time is another prime factor to guide us in establishing certain basic fees. By the use of a stamp clock an accurate record may be kept of the number of visits of a patient and the time consumed on each case. The total amount of time consumed on each individual finished case for a year divided by the number of completed cases will give us an average of time expended during the course of treatment. By multiplying this time by the value you place upon your services per hour, an average fee may be determined that will act as a safe guide in making a remunerative fee. A simple method of determining our average fees for a year is to deduct the gross expense from the gross receipts and divide the net income by the number of finished cases. This information may then be utilized in determining and establishing certain basic minimum fees. Our unbusiness-like habits of not basing our fees on the cost of production, with too small a value placed on our time and ability, only too frequently permits us to sell our services without a fair profit.

The great majority of the people applying for orthodontic services are of such moderate means that a high fee may be prohibitive. In order to serve as many as possible and still receive a fair remuneration, a certain minimum basic fee may be established which, in turn, will act as a guide in charging patients of wealth.

Orthodontia, on account of the peculiar nature of the work, allows little opportunity for real charitable work owing to the time and expense involved during the course of treatment. The professional spirit or that attitude of mind which subordinates financial reward to the pleasure of rendering service is worthy of the highest commendation, but must be well controlled in ortho-

dontia. This spirit, tempered with due recognition of the fact that if our time is well filled with patients paying a remunerative fee we can confer quite as great benefits on the public, will allow us to render greater justice to the worker and to those for whose welfare we are more directly responsible.

It is not usual to determine the selling price of an article or service by its value since that is too indefinite, varies too greatly with people in different circumstances and would too frequently make the price prohibitive.

The old dentist who states that the value of dental service is beyond price tells the truth concerning the value of such service. For the child whose narrow arch and crooked septum with a facial deformity to be corrected and the teeth to be placed in alignment and restored to functioning power, the value of orthodontia services is so great that the value cannot be estimated nor often adequately paid for. And for patients of sufficient wealth so that high fees are not prohibitive, the value may form part of the basic fees.

The cost of the operation, including the remuneration on a minimum fee basis, need not be allowed to establish the minimum fee for any case. As the orthodontist increases in resources and skill, with patients becoming more numerous and his time more valuable, he may need to advance his fees and decrease the number of patients. The advanced fees will then represent a compromise between cost and values, with cost as the basis.

IMPROVED METHOD FOR LOCKING LINGUAL ARCH

BY C. E. BERKSHIRE, D.D.S., TAMPA, FLORIDA

MOST of the methods for locking the lingual wire up to this time have used half-round tubes soldered vertically to the lingual surface of the plain molar band. If the tube is allowed to extend to the occlusal region, the lingual cusps of the opposing teeth will interfere, and if allowed to extend gingivally, the spring or lock impinges on the soft tissue.

It is natural that with such a short tube we cannot hope to hold the wire rigid for any great length of time, when the tongue is working in the anterior region trying to lift the wire, therefore I have designed a perfectly straight wire of 18- or 19-gauge, with threads and nuts the same as the old expansion arch, except that it is used on the lingual surface.

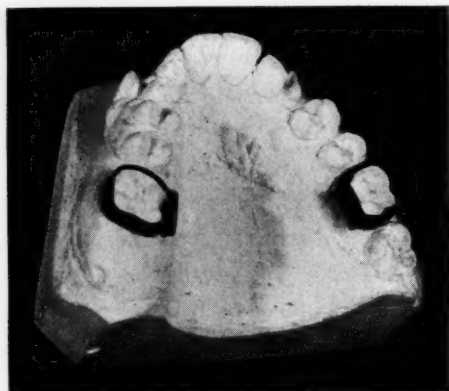


Fig. 1.

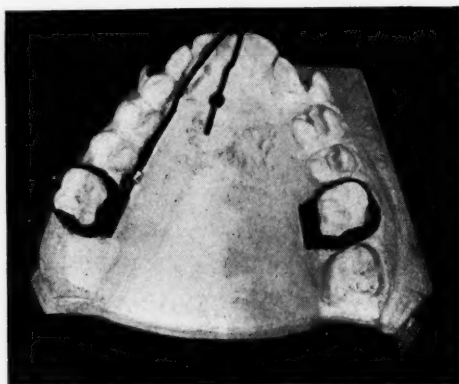


Fig. 2.

After securing a good plaster impression of the case, and the model completed, at the next visit I make plain molar bands and fit them to the teeth in the mouth, remove, and place them on the proper teeth on the plaster model. On the lingual surface of the right molar band I solder a round tube of desired gauge 7 mm. in length *horizontally*, place band back on the model, solder similar tube on the lingual surface of left molar band *horizontally* before placing this band on the model, split the tube *horizontally* with fine blade in the mechanical saw, open the tube with blade of knife far enough to allow the desired arch to lie in *horizontally*.

Fig. 1 shows the model with bands in place preparatory to bending the arch to conform to the unequalities of the lingual surfaces of the teeth; to obtain best results I follow Dr. Mershon's plan as described in *Dental Cosmos* for June, 1920; the wire is now carefully fitted to the plaster model, having the nuts just mesial to the tubes. The tubes should be coated with wax to

protect the tongue, and the bands cemented to the molars. The patient should be dismissed for a few days.

At the next visit the wire is installed. Fig 2 shows the wire entering the tube on the right molar, and being forced distally until the nut touches the tube; if care has been exercised in shaping the wire on the model, it will lie in the split tube on the left molar as shown in Fig. 3, and the nut will be in proper position; if not, I remove and make proper adjustments in the mouth, attach any small springs necessary, squeeze each nut with heavy pliers to prevent movement with the tongue, and install arch as before. With long, small-pointed pliers I close the open tube on the left molar, bending up the ends and corners with foot plugger in the automatic mallet (Fig. 4).

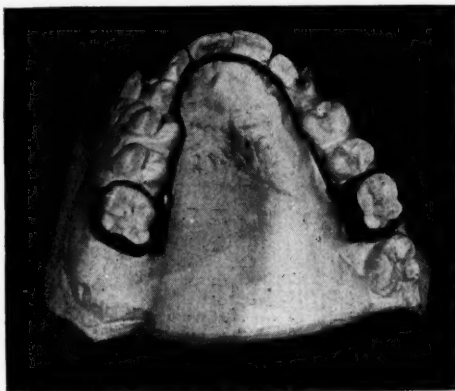


Fig. 3.

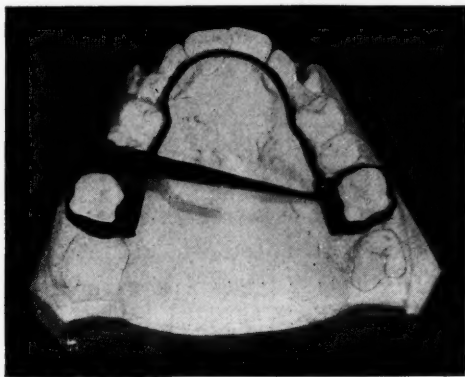


Fig. 4.

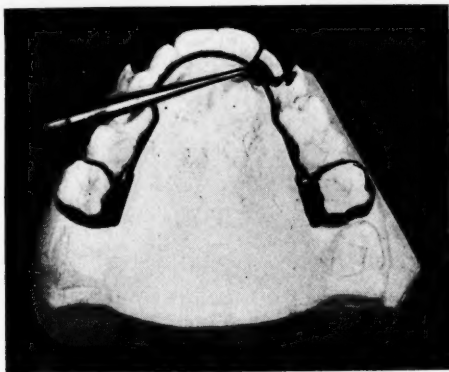


Fig. 5.

With this appliance in place, the tube properly closed, the band will loosen rather than the wire, and having the leverage of the long tubes it is impossible for the patient to loosen the wire with the tongue, the long tube also prevents rotation of the molar. If second molar is present I usually attach a lug to the disto-lingual angle of the molar band, this lug comes in contact with the lingual surface of the second molar, causing it to move buccally with the first.

To remove the wire for adjustment, the tube can be opened with a gold knife or any small chisel, being careful about heavy pressure which might

break cement and loosen band. It is well to remember to measure the distance between the tubes, and see that the distance between the ends of the wire are the same before installing again. Excellent results may be obtained with this appliance especially in Class 1 cases where the patient objects from an esthetic standpoint, bands or ligature being unnecessary on the anterior teeth.

There has been a serious misunderstanding in the dental profession regarding orthodontic appliances, some advertisers would have one believe that most any case of malocclusion can be successfully treated by simply securing one of the many patented appliances, placing it in the patient's mouth, securing perfect results. The success obtained by any appliance is due to the care and attention of the operator, the recognition of this fact will prevent a hasty diagnosis and many failures.

One other advantage of this method of locking the wire is the fact that it is adjustable. If the wire is fitted perfectly to the lingual surfaces of the teeth the nuts may be tightened at the molar tubes and a slight pressure maintained in the anterior region; in case the wire threatens to push up to the occlusal when nuts are tightened I make bands for some convenient anterior tooth, solder a small hook on the lingual, cement to the tooth while the wire is in place, after the cement has hardened I bend this hook down over the wire with automatic mallet (Fig. 5).

In Class 2 cases I use the lingual wire for the lower only, and solder small hooks on the buccal surface of the molar bands to hook the intramaxillary rubber ligatures. In Class 3, I reverse the above procedure.

In all my cases I use the lingual wire as my retainer for the lower and in many cases for the upper, depending on the bite; the tongue keeps this retainer clean, only two teeth being banded, and the patient can brush the labial and buccal without fear of loosening any parts.

OCCLUSION OF TEETH IN RELATION TO THE TEMPORO-MANDIBULAR ARTICULATION

BY RICHARD SUMMA, D.D.S. KANSAS CITY, MO.

THE more successful plan is to move the mandibular teeth forward and leave the condyle in the anatomic position."

"Now, what was demanded in those cases was the forward movement of the mandibular arch with the condyle remaining in the anatomic position."

"By moving the teeth forward according to the above method we are positive that the mandibular arch has been lengthened without the condyle being moved forward."

These quotations are taken from an editorial in the May, 1921, International Journal of Orthodontia and Oral Surgery. Every one who has attempted to correct malocclusions involving a correction of the mesio-distal relation of the molars (which in its finality means a correction of the mesial distal relation of the maxillary and mandibular arches) has met more or less disappointment, usually more.

The dissections and study of the temporo-mandibular articulation conducted by Professor H. J. Prentiss and the writer confirmed the rational assumption that, not only the loss of teeth, but also the occlusion of teeth is recorded in this joint.

Many years ago while this problem was being discussed, a writer used the appropriate phrases of "jumping the bite" and "jumping the occlusion." The former was applicable to an attempt to move the mandibular arch forward as a whole, thus the only change was expected to take place in the temporo-mandibular articulation; the latter, jumping the occlusion, is applicable to moving individual teeth as referred to in the editorial under consideration.

If the observations of Professor Prentiss and the writer are correct, then *every permanent change in the position of teeth is recorded in the temporo-mandibular articulation.*

There is no doubt that jumping the occlusion is the logical procedure for various reasons, but it is likewise logical to assume that an adjustment of the temporo-mandibular articulation is imperative and does take place in the cases where the teeth remain in the corrected positions.

If the nature of the tissues composing this articulation is taken into account, it is not surprising that its adaptation to changes in the occlusion of teeth is very gradual.

While we have no data on hand to make any positive assertion as to the corresponding depth or shallowness of the glenoid fossa in various types of malocclusion, the writer will hazard the opinion that in distal mandibular occlusions, a shallow glenoid fossa and rather flat condyle will prevail. To retain teeth which have been changed from a Class II, Division 1, malocclusion into a normal mesio-distal occlusion, a deeper glenoid fossa and corresponding condyle will be required.

Does this change take place?

IMPACTED AND UNERUPTED CUSPIDS AND THIRD MOLARS*

BY DR. ALLEN E. SCOTT, SAN FRANCISCO, CAL.

IN young patients with whom we most frequently concern ourselves, there is often considerable doubt as to whether a tooth is impacted or simply has not erupted. In this paper it is assumed that an impacted tooth is one that will not or cannot erupt in the course of time, while an unerupted tooth is one that will erupt either in or out of its normal position if sufficient time is allowed to elapse. This statement applies, of course, to dentures where no orthodontic treatment has been given. When space is produced for an impacted tooth it may then become an unerupted tooth. While it usually happens that premolars will erupt when sufficient space is provided, the same statement does not hold true of canines.

There is no doubt that the human denture is undergoing a change. This is probably due to the nature of our food as well as the mode of taking it. There seems to be a great tendency toward the elimination of the lateral incisors; the absence of a premolar is by no means an uncommon occurrence.

Impacted teeth usually result in considerable discomfort to both patient and dentist. If let alone they are apt to cause considerable pain by pressure on nerves; they may result in the formation of a cyst; or in the event that they are left when other teeth are extracted, they sometimes erupt under a plate or bridge. When this occurs, their removal is usually necessary and the construction of a new plate or bridge is usually indicated. From this it is quite evident that an impacted or unerupted tooth should receive our attention.

We are probably called on to deal with impacted maxillary canines and mandibular third molars more than any other teeth in the mouth. The treatment of these conditions is very different. In the case of the canines it is usually desirable to move the tooth into its proper position, while in the case of third molars, with the exceptions as stated later on in this paper, it is desirable to remove the tooth. Due to the position of the third molar, it is a very hard tooth to keep clean and therefore is usually subject to an early attack of caries. When it happens that the second molars are badly decayed or have been devitalized, it is often considered best to advise the extraction of the second molars and allow the third molar to come forward into the space created.

It is rather difficult to draw a distinct line of demarcation between the impacted canines that can be moved into position and those that have to be

*Read before the Pacific Coast Society of Orthodontists, Portland, Oregon, Feb. 16-18, 1921.

extracted. But in general the treatment is dependent on about three conditions:

1. The position of the tooth or the distance to be moved.
2. The age of the patient.
3. The condition of the teeth in general.

In some cases the canine is so high in the substance of the maxillary bone that it is an extremely difficult operation to successfully place a pin in the tooth. The determination of this should, of course, be left to the judgment of the surgeon. Without very much data to substantiate the statement, I think that it is feasible to move into position most any canine in which it is possible to place a pin for the attachment of an appliance.

In these cases the Mershon appliance is used. The base wire is bent in such a way as to allow the canine to come into position. An auxiliary spring is soldered to the base wire in the molar region. This is attached to the pin by means of a piece of wire ligature and the patient dismissed for about a month. The tooth usually moves very slowly at first, due to the simple fact that both crown and root are in bone substance. But when the crown has been moved into soft tissue, movement takes place at the ordinary rate that we are accustomed to move teeth. When the crown of the tooth is sufficiently exposed, the pin which has been placed by the surgeon is removed if possible. If it is not possible to remove the pin, it is cut off and a band placed on the tooth. From this point on, the same treatment is followed as would be used when a tooth is in ordinary malposition. In operating on these cases Dr. James G. Sharp uses a threaded wire the same size as the drill. By following this technic the pin is securely placed and very little trouble is experienced by the pin's being loosened and coming out.

From our present knowledge mandibular third molars seem to be impacted in increasing numbers. This is in all probability due to a tendency of the human race to use the jaws less and less for mastication as civilization advances. There seems to be no doubt that a great many of our dental defects are due to our mode of living under our present state of advancement. It appears that nature does not develop enough bone to properly accommodate the third molar.

In young patients an unerupted third molar is apt to be taken for one that is impacted. In patients ten or twelve years of age these teeth usually slant somewhat to the mesial when they are occupying a normal position. It has been shown in numerous cases that mandibular impacted molars may cause the anterior mandibular teeth to rotate and lap. In these cases, of course, their surgical removal is indicated. However, where it is desired to obtain forward movement or development of the mandible it is not desirable to remove these teeth until late in the period of treatment. With a retaining appliance in place so as to prevent crowding of the anterior teeth the pressure of the impacted third molar will be exerted in such a way as to crowd all the mandibular teeth forward. In this connection it is well to remember that the longer the teeth are left in position, the more developed the roots become and their removal is rendered more difficult and complicated.

DISCUSSION

Dr. W. R. Dingham, Portland, Oregon.—I have gone over Dr. Scott's paper and agree with him on practically all of his points. The movement of impacted canines is accomplished in several ways, but I think the method wherein the lingual appliance is used is the best as from it you can get practically any direction of force that may be required. Very often the impacted canine cases are in older patients and for the purpose of maintaining the space and giving a better appearance, a canine facing can be soldered to the lingual appliance and the space thus maintained and the appearance improved while the impacted canine is being brought down. This form of appliance can also be used in impacted incisors. Where you have soldered a facing on the lingual appliance, in the case of impacted teeth, the lingual appliance and facing also serve a valuable purpose in giving you the relations of the teeth and parts when taking an x-ray. By taking a picture through the top of the skull so as to give an occlusal view of the teeth and appliance, the impacted tooth can be easily located, if pictures of the other usual angles have been taken. Before the use of the x-ray, we cut into the tissue, tried to locate the tooth, and very often we missed it. I was timid about cutting away very much of the process at the time I was trying to locate these teeth. It was my practice to make a very small opening and try to put a pin into the tooth, feeling sure where it was going and the direction of the tooth. Now with the aid of the x-ray we can go in and open the entire area and expose the crown of the tooth and determine positively the direction of the tooth. By removing a good portion of the bone from in front of the crown, the resistance to the tooth movement is lessened and the tooth responds more rapidly. There are several different methods of attaching to the impacted teeth. Dr. Dunn has one I have never seen before. Some men are able to put a band on a tooth even when it is deeply imbedded in the process. Dr. Engstrom explains how he gets a band on a tooth and cements it in position, which plan does not injure the tooth as does placing a pin in the crown.

There is no question but that the impacted canines cause much trouble from pressure, thereby producing reflex nervous conditions. They also cause absorption of the roots of the other permanent teeth. I recall one case similar to the one Dr. Scott speaks of in which the complete absorption of the lateral incisor root was produced by an impacted canine. The question of the age of the patient is an important feature in this work. The older the patient, the greater the difficulty in bringing down these impacted teeth.

Dr. C. O. Engstrom, Sacramento, Calif.—The procedure I have used for many years is about the same as that explained by Dr. Scott. However, I use a cap instead of a band, as the doctor has just stated. My idea is not to mutilate the tooth at all. The cap can be cemented to the surface of the tooth, and sufficient pressure may be exerted to move the tooth. In one case I treated, it was necessary to place a cap on a canine, which was located, it seemed to me, fully a half inch within the outward plate of the superior maxillary bone. It was a considerable distance. I cemented a cap on the tip of the canine and moved the tooth out sufficiently so that it might be banded. I think the next paper on the program will describe a method very similar to my own.

Dr. William Cavanagh, Portland, Oregon.—I fear we may be guilty of perpetrating a crime on the third molar in orthodontic treatment sometimes. If we begin the treatment of a case at the age of six to twelve years, the development of the jaws is forward. I believe when we think we are stimulating the development of the jaws in a certain direction that we are retarding them in another. My opinion is that when we place stationary anchorage on the permanent molars, for a period of years for the purpose of producing lateral development, we are prohibiting a growth of the arches in a forward direction. The third molar, as Dr. Scott stated, has a forward direction in early life and only assumes an upright position when the jaws develop forward and the second molar moves anteriorly and allows space for the third molars to erupt. If we prohibit the forward movement of the third molar we have stopped the normal action and purpose of the inclination of the third molar; namely, to assist the forward development of the arch in keeping with the cranium. So, I fear that we have been stopping development in certain

cases that would have occurred but for the appliances that were used. I will ask whether any of you have ever heard a theory as to why we get these abnormal inclinations of these canines? There are so many cases in which the cusp of that tooth is almost at a level with the root. We have other theories as to why other malpositions occur, but I have never seen any reason why the canine should assume such a perverted position.

Dr. Chas. C. Mann, Seattle, Wash.—I remember one case where the x-ray pictures showed the canine apparently coming down into correct position. The deciduous canine was in position, and the arch was approximately normal. The patient did not want the deciduous tooth extracted because of appearance; so we left it, depending upon the x-ray for assurance that the deciduous tooth would absorb and the permanent tooth come into the arch. Neither one of those things occurred. Later we made another picture, in three or four months, and the root of the deciduous tooth had deflected the crown of the permanent tooth and it was lying almost horizontally across the other tooth. It eventually passed the median line and was extracted. I believe the extreme inclination of the canines is due to a general lack of development of the arch. Being the last teeth to erupt, they are easily deflected from their course. My experience with an impacted central may be of some interest. In one case the oral surgeon made an incision and removed the process and I started the movement of the tooth. However, so much bone had been removed that it never regenerated. Although the tooth is in position it seems hopeless, as the bone has never developed around it. So I would caution you in regard to removing too much bone in the intermaxillary region.

Dr. H. L. Morehouse, Spokane, Wash.—I would like to answer Dr. Cavanagh's statement with regard to the impacted third molar. As you know, the impacted third molar is my hobby. I think I have stated before that in many of our Class II cases, with prominent canines, or what is termed receding incisors, that condition has been brought about to a more or less degree by the natural, as Dr. Cavanagh explains it, development due to the force of the erupting second and third molars. I say this from experience with my own daughter's teeth. I treated her teeth at five and one-half years of age, making the necessary expansion for the eruption of the permanent set. I was careless in watching the mouth at the time of the eruption of the second molar. The eruption of the second molar forced mesially the entire line of teeth, premolars and canines to a minor degree. After that, I made radiograms of the third molars, and found she had both maxillary and mandibular third molars impacted at fourteen years of age. I feel that there is possibly a very slight chance of checking that mesial development that is expected, or which we used to be taught is to be expected from the mesial inclination of the second or third molars. If you will make x-ray pictures of your patients' jaws from six years right along, if you cannot tell at the time you first find the germ of the third molar showing, that you will have an impacted third molar, then I am very much mistaken. If the tooth is going to be impacted, it will show at the commencement of development of the tooth germ. It follows along the same line as the impacted canine. Why do these teeth lie sometimes horizontally? We can answer this only in one way to the patients. The germ is deposited on that angle, in that direction, and that is the direction in which the tooth will erupt. It is a slip in nature, to the same extent that the cleft palate in the majority of instances is a slip. Cleft palate is not always due to disease. It may be a threatened miscarriage, or something of that kind. So we have the same thing in the malposition of the canine teeth, I think; but with the third molar, while there is a chance if you will allow the distal movement of the second molar, you may get added impaction, and, as I said in a paper a year ago, the impaction may be due to opening up spaces for upper premolars.

Dr. P. T. Meaney, Portland, Oregon.—The abnormal positions of the canines (especially the maxillary) are due, I believe, to a lack of length in the arch, mesio-distally. The lack of length is the result of premature extraction, or loss of tooth structure by decay, of the deciduous canines, also first and second molar.

As early as the third or fourth year of the child's life, the first permanent molar is exerting a force which causes the first and second deciduous molars, also canines to move toward the point of least resistance which is mesially, thereby lengthening the arch.

If the mesio-distal diameter of the deciduous molars and canines is destroyed by caries or these teeth are lost by extraction, the mesial movement of the first permanent molar is the result, occupying a position mesial to the normal, approximately the width of the lost tooth or tooth structure and more or less so in the mouths of youngsters under eight years old; after that age the premolars are a resistance to mesial movement of the first permanent molars.

The above lack of length of the arch will not accommodate the permanent canine, therefore it is deflected labially or lingually to its normal position.

The position the canine maintains in the arch is a solution for its easy displacement, where it has not sufficient room for normal eruption.

The fact that the canine is a penetrative and prehensile organ is also a reason why it assumes many abnormal positions in the arch when forced to erupt in arches not developed normally.

Dr. E. C. Reed, Long Beach, Calif.—I would like to ask, since we are speaking so much with reference to the forward movement due to the eruption of the third molar, is there not a change in the angle of the mandible, changing from a more or less obtuse, to more nearly a right angle, thus providing a posterior development of the jaw, giving additional room for the accommodation of the teeth?

Dr. Charles C. Mann, Seattle, Wash.—I wish to take issue with the president's theory that the misplaced canine is the result of misplacement of the germ of the tooth at the time of its formation, as it is laid down in the membrane of the individual.

Dr. Morehouse.—I referred primarily to the horizontal position in which the canine teeth are found, and not to minor deflections.

Dr. Mann.—Possibly I misunderstood you, but the fact remains that if we accept a theory of that sort we must set aside many other things we have been led to believe by experience of the past, as contributing to the normal development of the arches. These things are related one with the other. So, if we are to accept the theory that these things are prearranged, we might as well discard the other forces which we think play a part in the development of the jaws. I feel as Dr. Reed does, whether we care to accept it or not, that there must be some posterior development due to a change in the angle of the mandible; there must be some compensatory development there that increases the space for the third molars in these cases. I believe it might be well to go a little more slowly in our treatment and ascertain by the use of the x-ray whether these third molars have been impacted prior to our treatment, or whether by hurrying the treatment in the anterior region of the arch and exerting distal pressure we did not tend to impact the third molar that had originally only a slight inclination.

By the continued use of the x-ray, we can determine fairly well the possibilities of the third molar coming into correct position. I have observed where you have the mesial marginal ridge of the third molar caught gingivally to the contact of the second molar that the third molar will not come into normal position, but if the mesial marginal ridge of the third molar is occlusal to the contact point of the second molar and there is no backward pressure on the second molar, the third molar will assume a normal position. By using the second deciduous molars for anchorage in as many cases as possible, we are less liable to displace the first permanent molars distally.

Dr. Morehouse.—I want to make myself clear as to the cusps. I think the theory that I advanced with regard to the canine that was impacted to the degree of being horizontally placed with the cusp lying at right angles to the root of the centrals—

Dr. Mann.—Did you have an opportunity to observe it at the beginning of the formation of the canine?

Dr. Morehouse.—When the root was one-half or two-thirds formed. We sometimes find a supernumerary germ completely reversed in its root direction. Here the same theory would apply. I have x-ray pictures of a maxillary supernumerary tooth germ that lay with its root headed downward instead of upward. We had one the other day, a completely

formed lateral incisor, a supernumerary, with the root pointing where the crown should be. On the same theory the germ was laid down that way and it will grow that way in spite of anything.

Dr. Mann.—We, as orthodontists and general dentists have not had as much experience and study as we need. I do not think a rare exception would prove the average rule.

Dr. W. E. Dingham, Portland, Oregon.—In what percentage of cases do we have an impaction of the third molars at an early age? I have difficulty in determining when a third molar is impacted in a young patient.

Dr. Morehouse.—I have not had the time this year to do the x-ray work on younger patients which I had hoped to do. I never start a case of malocclusion ten to twelve years of age without having x-rays for third molars, especially if any outward tendency toward impaction is in evidence. It would be very interesting, and I would suggest that some members who have a little time would start in at six and follow up a few cases that indicate the possibility of impaction, following them from year to year, and see how they develop. I am positive the third molar is misplaced at an early age. I am going to prove it some day, but I have not had time this year.

Dr. R. S. Baldwin, Spokane, Wash.—In the line of hypothetical theorizing on causes of canine displacement you may assume that the pressure of the erupting tooth causes absorption of the deciduous tooth. Now in most cases that we see, the incoming canines have a tendency, if there is a crowded condition, to erupt labially or lingually to the deciduous canine. This might be on account of the conical shape of the permanent canine which gives very little contact surface to exert the influence for disintegrating the root of the deciduous canine. And if that incoming tooth does not strike the deciduous root with sufficient contact to cause disintegration, it passes that root by, and starts in a deflected course. In many cases where you have impacted canines, the deciduous canine roots exhibit practically no disintegration, and the permanent canines lie laterally to the vertical direction of the deciduous root. The canines are peculiar in the manner of eruption and in the way the deciduous roots are sometimes retained, and the ease with which the retained roots deflect the permanent tooth. If, as the result of an early x-ray diagnosis, we would extract the deciduous canine it would aid materially in correcting that condition before the permanent tooth is deflected beyond hope.

Dr. Scott.—The whole thing reminds me of the conversation with a man who has to do with a weather bureau. He says "It will rain tomorrow." "How do you know?" "The barometer is going down." "Why." "Because the air pressure is going down." And that is as far as we get. These teeth are out of normal position because the germ is misplaced. Why is the germ misplaced? We do not bring our argument to a successful conclusion. We do not get anywhere. Since the normal position of the canine is between the lateral and the first premolar it may be during the forward development of the arch these teeth move forward, and the canine being placed high in the bone, does not come under that forward influence and is left behind in the development, and when it does erupt it erupts out of its normal position.

It is certainly more desirable to place a cap or some sort of a band on a tooth, such as Dr. Engstrom and Dr. Dunn have referred to. You cannot always tell exactly the position of the crown. Some years ago a man operated for Dr. Suggett, putting a pin in the root of a tooth, instead of in the crown. The third molar has become more and more interesting as we have studied it, and our studies on it are not exhausted by any means. We have to reckon with this tooth more and more as we proceed. It occurs to me the reason for some of these things may not be so particularly necessary unless they lead to the removal of their effect. One more thought, as to the age for the removal of these third molars. In our office, we sometimes leave them in some little time, but you must remember the roots are being developed all the while, and the longer they remain, the more difficulty one may have in their removal.

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It is the object of this department to publish each month original articles on dental and oral radiography. The editors earnestly request the cooperation of the profession and will gladly consider for publication papers on this subject of interest to the dental profession. Articles with illustrations especially solicited.

RADIOGRAPHY IN THE EXAMINATION OF SUPPURATIONS AND DENTAL FISTULAE*

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IN recent years, the important rôle that bucco-dental infection plays in general pathology has finally been recognized. In cases of gastric trouble, blood poisoning, and ocular diseases, the attention of the physicians is turning more and more to the gingivo-dental region.

As far as pyorrhea is concerned, nothing is more simple. The diagnosis is easy. It is only necessary to examine the mouth in order to recognize the disease. Often, however, fistulae exist the dental origin of which is unknown. These fistulae, which play so important a rôle in infection of the organism, not only have to be discovered, but their cause has to be accurately diagnosed. In diagnosis, radiography gives us exact data which serve to complete the clinical signs which are often insufficient. To illustrate this point, we will set forth in this article a number of case histories in which radiography has been of great assistance in permitting us to make an etiologic diagnosis. Thanks to this accurate diagnosis, we have been able to institute rapid and decisive curative treatment. This treatment need not always be extraction; indeed, it should tend toward conservation of the teeth.

It can be readily understood that the anomalies of dentition, dental impactions, the abnormal evolution of the third molars, as well as certain apical affections, the existence of fractured roots, foreign bodies, etc., can all be the

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causes of buccal suppuration. When etiologic diagnosis is difficult to determine clinically, we take recourse to radiography.

We do not insist on a certain technic which should be followed in the radiographic examination of the teeth. We usually use two methods in France: the extra-buccal plate for the study of the inferior molars; the small intra-buccal plate for the other teeth. The less penetrating rays permit the retention of the structure of the tooth and the neighboring bone.

The lesions revealed by the plates, in the various cases that have come under our observation, are of different kinds, and their aspects are either clear or very variable.

It may be a fractured root abandoned to run the course of an avulsion. If the lesion is not too old, and the root has not yet been altered by the course of the suppuration, it can easily be recognized by the characteristic shadow of the radicular canal.

If the lesion is old and the root very much altered, it becomes difficult to distinguish from a sequestrum (Obs. 1), especially if it is surrounded by a zone of osseous rarefaction. We recall, in the case of one of our wounded soldiers, that the shadow given by the radiogram could not be identified except during the operation; it proved to be a fragment of rock as opaque as osseous tissue.

In short, the plate frequently reveals a zone of infection, generally very small, at the apex of a tooth whether the tooth has been suspected or not. The small apical cysts, the granulations which develop from contact at the infected apex, are revealed very clearly on the plate. Tissue which is less dense than osseous tissue is easily traversed by the rays. It is inscribed in black on the negative, in white on the positive proof, in the form of a small round pocket at the contact of the apex. The size of this pocket varies from that of the head of a pin to that of a hazelnut. (Obs. IX.)

A veritable lesion of the bone can exist, a focus of osteitis at the point of contact with the infected tooth. The osseous tissue is rarefied or is destroyed at the base. Still, many times, on the other hand, the tissue becomes less dense, more permeable to the rays, and reveals its image in gray or in black on the negative, in white on the print. In this way one can appreciate the extent of the focus of osteitis, its relative location to the root, or, on the contrary, to the several teeth in the neighborhood of the neck of this tooth, etc. In certain cases where the clinical diagnosis is difficult, radiography permits the discovery of a tooth which does not seem to be affected, or it shows that a neighboring tooth is involved in the focus of osteitis.

If the lesion is far advanced, a sequestrum which is often difficult to differentiate from a necrosed root, can be perceived. Moreover, the plate may reveal a spontaneous fracture from necrosis of the maxillae. (Obs. VIII.)

Finally, the plate may reveal the cause of infection to be unknown or only suspected dental impaction (almost always a canine) (Obs. III and IV) or a third molar the position of which is malignant or is in abnormal evolution. (Obs. VI, VII, VIII, IX.)

OBSERVATION I.—M., a physician, suffered in 1903, while in his regiment, the avulsion of the first left molar.

In 1910 a fistula in the gingivo-jugal groove at the base of the second molar which had appeared perfectly healthy became apparent. The first radiogram seemed, at this period, to furnish little information. It revealed only a small black point at the alveolar rim, and it was thought that this point was a third molar.

In 1913, the patient suffered successively the avulsion of the second molar, then the third molar; finally, a succession of curettements was attempted which resulted in nothing. In October of 1912, we took a radiogram which revealed at the base of the alveolar rim a cavity surrounded by a small osseous fragment (sequestrum or root?). This fragment of root, being necrosed, seemed entirely abnormal; examination proved this not to be the case.

After the war, we saw the patient again. The fistula was still in the same state. A new radiogram showed the lesions more accentuated and more characteristic, the cavity larger and more regulated, the fragment of root, although without apparent structure, was more clearly visible (Fig. 1).

Operation the 26th of February, 1920: The bone is very dense, and in order to bring it to light, it is necessary to raise the second premolar. After much difficulty and after trusting to the data gleaned from the radiographic examination, we finally uncovered the cavity where we detached an important fragment of root; this was nearly unrecognizable. It had a very irregular surface, as though decalcified by the long suppuration.

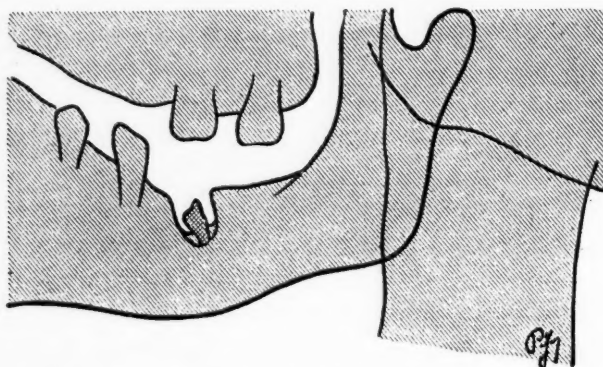


Fig. 1.—Dental fistula dating six years back. The radiogram showed the presence of a necrosed root. Avulsion of the root; immediate healing of the fistula.

The radiographic examination was complicated in this case due to the fact that the fistula, on account of long continued suppuration, and because of the change of form and structure of the sequestrum which it has carried off, bears no relation to the root of the tooth.

Nevertheless, the radiogram, followed by several interventions, permitted us to fix the cause of the suppuration and indicated the surgery to follow. It can readily be seen how an early radiogram, skillfully taken at the time when the root has not yet become altered, gives information very easy to interpret and, on the other hand, permits the surgeon to make an easy intervention if the maxilla has not yet become modified.

OBSERVATION II.—Mme. D., carried for six years a fistula at the base of the left superior premolar. This tooth had always been correctly treated and disinfected. We attempted to disinfect the fistula in the usual manner by making an injection in the alveolus in order to get the liquid to the fistula. This treatment was to no avail. On the other hand, the incisors appeared to be healthy, and the cause of the suppuration escaped us.

The radiogram revealed very clearly the extent and location of the lesions (Fig. 2). The root of the premolar was altered and surrounded by a zone of strong infection which promotes the rarefaction of the bone. Furthermore, the clinically sound tooth was also tainted, and the apex plunged in the infected zone at the contact of the root with the premolar.

On account of these indications, the canine was bored. The root was found to be infected, but it was drained by the alveolar cavity and the fistula. The day of the examination, the fistula was dry.

In this case, the clinical examination in no way permitted us to suspect the lesion of the canine which was the veritable cause of the fistula. The radiogram, furnishing this new idea, allowed us to institute the exact treatment for the damaged point, that is to say, on the apex of the canine, and to bring about very simply and very rapidly, the cure of an old suppuration.

OBSERVATION III.—Mme. F., 72 years old, is completely toothless in the superior maxillary, and has been for several years. Her prosthetic appliance, which she had had for four years, gave her a good deal of trouble and was insecure during mastication. The apparatus was old, having been repaired several times; we thought it best to give her a new one. Nevertheless, and in spite of the fact that this new appliance was constructed in the most approved scientific fashion, it gave no better satisfaction than the old one, and was the cause of just as much trouble. In fact, at the end of several days, the pain was so great that the patient declared she preferred her old appliance to the new one.

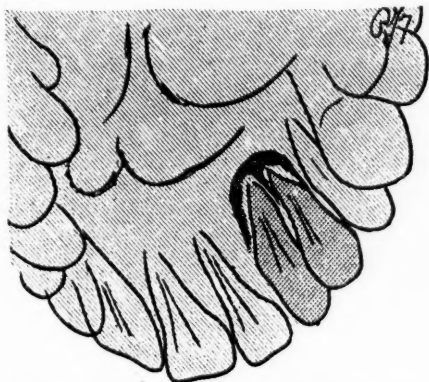


Fig. 2.—Dental fistula six years old at the base of the first premolar. The radiogram showed that the root of the canine was also in the focus of infection. After the extraction of the canine, the fistula healed.



Fig. 3.—Prosthetic apparatus troubled for four years; fistula. Radiogram shows an impacted canine, the cause of the suppuration. Extraction; the suppuration dried and the appliance was resumed with satisfaction.

Then, when we carefully examined the mouth at the painful area, we found, by pressing it, a small drop of pus. We examined the base very minutely and found, a little to the right of the median line, five millimeters to the rear of the alveolar crest, a small fistula, hardly visible. In our exploration with a probe, we came upon a strong and resistant body. Having already observed two similar cases, we resorted to the radiogram thinking it was an impacted tooth.

The radiogram revealed the presence of an impacted tooth, certainly a canine, lying lengthwise along the alveolar border. Furthermore, in front of this and at the base of the incisors, it had created in its immediate neighborhood, a zone of rarefaction and osseous destruction about as large at the point of osteitis as a hazelnut (Fig. 3).

In this case, we were again assisted by the revelation of the radiogram which showed us the presence of an impacted canine, thereby showing us how to go about drying the suppuration.

Under local anesthesia, we cut into the gum and uncovered the root of the tooth by means of a tenotome. Extraction was then simple, rapid, and practical. The results of the operation were very satisfactory. Several days afterwards the patient resumed her old appliance which served very well. Eight days afterwards, the cicatrization and the suppuration were perfect.

The clinical diagnosis was all the more difficult since the old appliance had been provided with a Contenau suction apparatus which had puffed up and congested the gum.

The suppuration could be supposed to be due to a focus of osteitis with lesion and detachment of the gum.

OBSERVATION IV.—M. L., fifty-four years old, had a series of maxillary troubles, and had had extracted, in succession, all of his upper teeth. Six months later he had the central incisors extracted; two months later, the lateral incisors.

After this last extraction he suffered a thickening of the gum at the anterior part of the superior maxilla, and a fistula was established. This swelling had the appearance of a tumor in evolution and had it not been for the fistula this diagnosis would have been made.

The patient continued to suffer. An area, painful upon pressure, existed a little to the posterior of the alveolar border.

Through experience with a preceding case, and two case analyses, we discovered, in our exploration with a probe, the presence of a hard, round body. We believed this to be an impacted canine. To confirm this diagnosis and facilitate the treatment, we took a radiogram of the anterior part of the right superior maxilla. The plate showed, as has previously been observed, the presence of an impacted tooth, very probably a canine, lying horizontally along the alveolar border. The crown was irregular as though eroded, probably

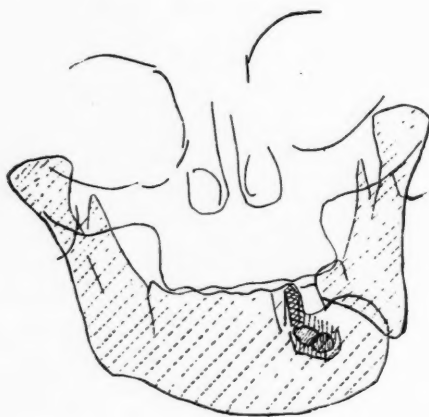


Fig. 4.



Fig. 5.

Figs. 4 and 5.—Double fracture of the inferior maxilla dating back fifteen months; fistula persisting. Radiogram. The canine is endangered by the drawing of the fracture; the two premolars are encysted in the maxilla. Danger of avulsion of three teeth. Healing of the fistula.

having been infected for some time and decalcified under the influence of the suppuration. Extraction, as in the preceding case, was practiced under local anesthesia and the patient convalesced in a short time.

OBSERVATION V.—Marc B., twenty-four years old, in the 54th artillery, was wounded the 21st of February, 1915, by a splinter of granite.

A starlike scar was left in the chin region to the right. An old fracture, knitted without displacement, was in the inferior maxilla, but a fistula, with suppuration, persisted at the base of the right canine.

Radiogram (May 18, 1916) indicated that the canine was in contact with the focus of fracture, and revealed in its neighborhood the presence of two encysted teeth in the maxilla (Figs. 4 and 5).

Extraction of the right canine. Persistent suppuration.

September 4, 1916.—Parallel incision at the inferior border of the maxilla. We came upon an osseous cavity the size of a hazelnut. We curetted and took away two small sequestra which we remembered having seen in the radiogram, but we could find no trace of the teeth.

September 22, 1916.—This time, we tried something new. We found the two teeth

indicated and extracted them. This affected all the teeth having made secondary projections, been displaced and projected in the focus of fracture, then becoming encysted.

After some time the suppuration dried and the fistula disappeared.

OBSERVATION VI.—M. L., sixty years old, had for two years an abscess with marked trismus. At this time, the second right molar was extracted, this having before been filled. A short time after, a fistula was noted at the base of the gum: we decided to take a radiogram in order to determine whether a root of the second molar which had been extracted still remained in the gum.

The radiogram showed that nothing remained of the extracted molar. On the other hand, we discovered the presence of a third molar impacted in the inferior part of the ascending branch. It was plainly in the focus of infection because it was surrounded altogether at the base of the roots by a dark and characteristic zone. Furthermore, before it and in contact with the crown, a large dark zone existed responding to an important focus of osteitis. (Fig. 6.)

In this case again, the history of the malady, that is, the carrying of a fistula at the time of the avulsion of the second molar by a sixty-year old subject, was of no avail from a diagnostic viewpoint. The impaction of the third molar and the neighboring infec-

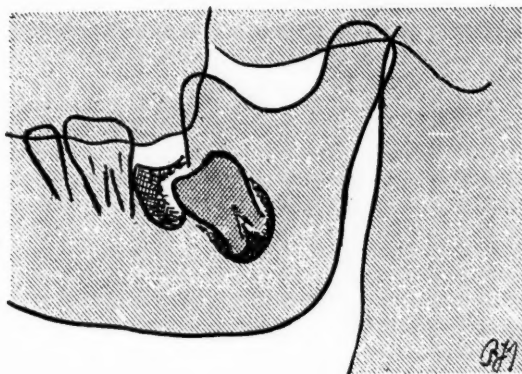


Fig. 6.—L., sixty years old, had fistula for two years; suffered avulsion of the second molar. Radiogram showed that the fistula was, in reality, due to an impacted and infected third molar.

tion was uncovered by the radiogram. This revelation permitted the establishment of a rational curative treatment of the fistula.

OBSERVATION VII.—G., a policeman, forty-five years old, commenced to suffer in August of 1914 and entered the hospital with a tumefaction in the neighborhood of the right angle of the jaw. An abscess was incised and the second molar, being suspected, was extracted.

The patient continued to suffer; a new abscess above the hyoid was incised. A new stay in the hospital from the 24th of September to the 4th of November was necessary. There was noted at this time, at the base of the angle of the jaw, a voluminous splinter of bone, seemingly, necrosis of the maxilla. At the time of operation, we found that the angle of the jaw was fractured. A radiogram was taken. The radiogram showed a fracture of the right angle of the jaw; furthermore, there was an impacted third molar at the base (Fig. 7).

There was also, in this case, faulty evolution of the other third molars.

There was also frangible necrosis of the angle of the jaw caused by the third molar. The radiogram made a precise diagnosis possible by showing the cause of the accident; the third molar in the focus of necrosis.

The indications thus received showed that the tooth had to be raised. But the patient evidently also had pulmonary infection to which he succumbed.

OBSERVATION VIII.—M. R., twenty-five years old, had intense gingivitis and severe pains in the locality of the left inferior maxilla to the rear of the molars, for one year; frequent hemorrhages occurred at the time of which the pain ceased to some extent. In June of 1919, a consultation of dental surgeons was called; they did not, however, diagnose the trouble as originating from a third molar.

After a month during which he suffered but little, the patient had his teeth examined. The second premolar was devitalized and filled (the second molars having already been filled.) After four days the entire left inferior maxilla became painful. The infection was thought to be due to one of the filled teeth, having been filled successively without anything abnormal having been noticed. At the time of examination, the left inferior maxilla is inflamed on the surface; a very extensive area of periostitis exists; trismus is present; suppuration has already been established. The patient suffers lassitude, nausea, and diarrhea. As it was found that the infection was not due to the teeth that had been treated, the presence of a third molar was suspected. We determined to resort to radiography to diagnose his real condition. The radiogram confirmed our diagnosis that the treated teeth

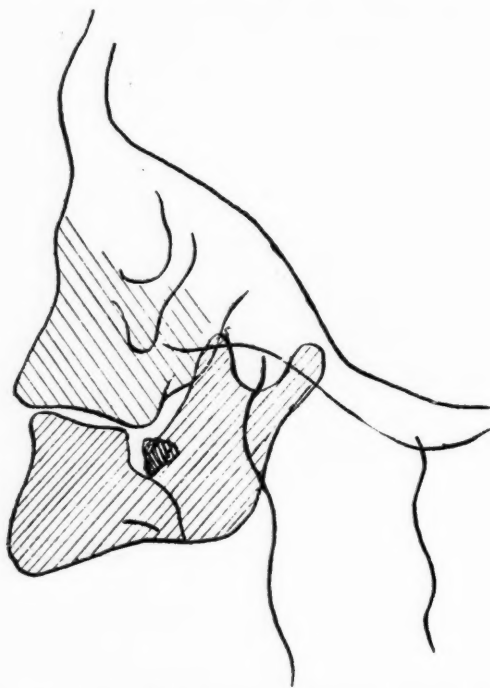


Fig. 7.—G., forty-five years old. Multiple osteitis: spontaneous fracture of the inferior maxilla. The radiogram showed that a third molar in the focus of necrosis was the cause of the trouble.*

were not the cause of the infection. It also showed a third molar lying horizontally along the base of the ascending branch, its crown striking behind the neighboring tooth. Moreover, a visible zone of infection existed in its neighborhood in the form of a dark area two millimeters in size which surrounded the crown at its inferior part. Making use of the facts established by the radiogram, we raised the second molar with the intention of allowing the third molar to evolve normally.

In this case, the cause of the suppuration and the periostitis was located by means of the radiogram at the base of the third molar, moreover, the vicious position of this third molar and the fact of its coinciding with the second molar led us to believe that the same condition might obtain in the opposite side, and it was possible for us to examine the state of the third molar and its possible infection on the opposite side by the same method.

*Illustration taken from Archives of Medical Electricity, October, 1916. P. Japiot: *Radiography of the Inferior Maxillary*. Presence of teeth or parts of teeth in the focus of fracture.

OBSERVATION IX.—M. F. had, for two months, a painful cavity with the appearance of a median fistula in the inferior maxilla. Radiogram showed a zone of apical infection, about as large as the head of a pin, at the base of the two median incisors. The decayed teeth were treated, the fistula dried, and the patient had a new radiogram taken to ascertain the state of the diseased teeth. The new radiogram showed that the zone of osseous rarefaction had disappeared and the maxilla had resumed its natural structure.

These telling observations can leave no doubt of the utility of this method of investigating infectious lesions of the maxillae.

Moreover, radiography is the only thorough method to clear up and determine the diagnosis of all osseous lesions. This point of view holds good also for the maxillae. It is undeniable that immediate radiography of lesions is a timely step; it can, in many cases, prevent the establishment of a fistula. By this means, the precise cause of a lesion can be determined very easily, and an early treatment of teeth that have not appeared to be infected is made possible. Systematic examination into the state of the teeth permits the discovery of structure alterations early enough to limit the possible extent of the focus of infection and permit a very conservative treatment.

ABSTRACT OF CURRENT LITERATURE

Covering Such Subjects as

ORTHODONTIA — ORAL SURGERY — SURGICAL ORTHODONTIA — DENTAL RADIOGRAPHY

It is the purpose of this JOURNAL to review so far as possible the most important literature as it appears in English and Foreign periodicals and to present it in abstract form. Authors are requested to send abstracts or reprints of their papers to the publishers.

Leverage Problem of the Mandible. A. Gysi (Zurich). *The Dental Digest*, April, 1921, xxvii, 4.

The author concludes his serial article as follows: the mandible is not a failure of nature but is especially well fitted to crush food with the exercise of a minimum amount of force; there is no such an amount of muscle pull required to crush food as was thought necessary when the action of but one-half the mandible was considered; by interaction of second class and third class levers the muscle pull of the balancing side is applied to crushing the food by the working side; the strongest fulcrum-making force is exerted at the balancing condyle, which, sliding slowly backwards and upwards, guides the mandible toward the position of central occlusion until the teeth come in contact. If the form and arrangement of the teeth do not agree with this guiding movement the fulcrum at the balancing condyle is destroyed and the teeth either fail to crush the food or do so only through the exercise of a greatly increased muscle pull. If the guiding action has been rendered unlike on the two sides of the head by asymmetrical loss of teeth the dentist can enable nature to maintain the desired efficiency by arranging the teeth for the guiding movement without readjustment in the temporomaxillary articulation. Nature's effort at this readjustment requires much time, is uncomfortable for the patient, demands excessive muscle pull and at best may be unsuccessful.

The Removable Lingual Arch. J. T. Quintero (Lyons). *La Province Dentaire* (per the *Dental Record*, Feb., 1921, xli, 2).

The lingual arch of Mershon consists of three parts, two anchor bands to fix the apparatus to the teeth and the arch proper. The anchor bands may be placed on the molars or the premolars; they are soldered bands. On the lingual surface they have a half round tube soldered vertically. In the tube there is a well fitting half round wire to which is soldered the arch near its extremity. The arch goes from one anchor band to the other, passing along

the gingival margin and following more or less the irregularities of the teeth. To fix the arch in place in addition to the Mershon lock one may use the Angle-Young or Burrill. A few bands and ligatures may sometimes be used if greater stability is desirable. In using the arch the curves may be gradually straightened or auxiliary springs may be used. A more difficult method is stretching the wires by special pliers which have to be changed for each size of wire. Combinations of the three methods may be used in special cases. The lingual arch will doubtless displace almost completely the buccal apparatus and vulcanized plates. Among the numerous advantages of the arch are the following: the operator may make his own bands and arches; no harm results if the patient is not seen for several months and the patient's visits need not be frequent; repairs if needed are readily effected without the delay in getting new apparatus; individual proficiency is readily acquired; the apparatus is well tolerated and does all that any competing device can do: the adjustability of the mechanism is all that can be desired, etc. If there are drawbacks the author has not yet found them. The numerous bands and ligatures of some apparatus can cause caries and other dental troubles.

Orthodontic Education. H. T. A. McKeag. *The Dental Record*, June, 1921, xlv, 6.

The demand for orthodontic treatment greatly exceeds the supply of orthodontists. By demand the author means that parents actively seek to have the children's teeth treated without any propaganda from without. This legitimate demand is often met with the declaration that nothing can be done, although it is as a rule not the dentist who makes such a statement. The postponement and delay in obtaining treatment make it necessary to use very complicated procedures which could have been avoided by timely treatment. However willing the dentist is to sanction orthodontics he has seldom had the training necessary to carry it out. It cannot be taught save in its preparatory and elementary stage in undergraduate schools. In itself a specialty it demands a special college course, necessarily postgraduate in conception. The author has sought such a course for himself but could find none even in the United States. He obtained his knowledge of the subject by private tuition in the United Kingdom and United States. He does not think it absolutely necessary to study in the States. In looking forward to an orthodontic college he does not think it will arrive for a long time and until then one must take the short, intensive courses by practicing orthodontists, such as are given in the States, which last ten or twelve weeks. The entire subject, parts of which can be learned by the undergraduate, comprises the etiology of malocclusion, preventive dentistry, physiopathology of tooth movement and its action on the bone, mechanical principles as applied to the teeth, apparatus in use, technic, etc. Clinical material would be necessary and the author would import one or perhaps two expert orthodontists from the States as instructors. Such might not be superior to the native talent, but should be obtained because of the prestige conveyed by success at home.

Orthodontics. J. Lewin Payne. *The Dental Record*, June 1, 1921, xli, 6.

This paper was the inaugural address before the British Society for the Study of Orthodontics, delivered at the annual meeting last January. This Society was founded in 1907 and the original 42 members have increased to 102. The study is by no means new and a century ago there were two schools of thought and practice, one of which stood for free extraction, while the other was conservative in this respect. Bell, the conservative, regarded Fox, the radical, as a quack for pulling as many as ten teeth in a child in the interest of orthodontia as he understood it. Today instead of merely two there are many kinds of doctrine and practice. Some members individualize treatment according to the indications, while others are more inclined to stick to some system. The interruption due to the long years of warfare has made it advisable to start anew in some respects. There must be a larger membership and the original intention to start a museum should be carried out. There is already a nucleus but it is in storage and not yet accessible. In addition to actual specimens there are models, photographs and radiographs. The Odontological Society owes its success largely to its fine library and museum. Next in importance is tuition and orthodontics should be taught to the ordinary dental practitioner and oral surgeon preferably as a postgraduate subject; for at present it is hardly practicable to give instruction to undergraduates, save in an elementary form. In other words there should be a course of the elements of orthodontia in the curriculum of the ordinary dental college. This subject in the earlier years cannot be presented alone but in association with some of the other subjects, such as the causes of irregular implantation, preventive dentistry, etc. Then in the fourth year there should be a short course—six lectures—by an authority on practical orthodontics. If the graduate would specialize he will of course attend the post-graduate course at the future orthodontic centre or station.

The Teeth and Systemic Disease. W. Gilman Thompson (New York). *The Medical Record*, June 4, 1921, xcix, 23.

The author to quote his own words presents nothing new but as he is constantly beholding many deplorable consequences of neglect of the state of the teeth he feels called upon to call renewed attention to the subject. The previous good health of subjects who present themselves with some manifestation of neuritis or rheumatism so-called is often striking. In purulent focal infection from the teeth, treatment of the latter is often associated with auto-vaccination. In regard to extraction vs. conservative treatment he would practice the former in chronic arthritis or polyarthritis, neuralgic pains, lumbago, persistent extreme muscular fatigue and other similar conditions without apparent cause other than infected teeth. To the preceding list might also be added certain types of cardiac irregularity and undue frequency not referable to organic disease, and gastrointestinal functional troubles. To view matters from the opposite angle periapical abscess, especially when caries or necrosis is added, may be both silent as far as local symptoms are concerned and

without any evidence of any remote consequences in the organism; yet the patient is constantly threatened and this threat may involve life itself. It is well to have radiograms made in all suspicious cases. The immunity of pyorrhea patients is to be attributed to the natural drainage and the author in common with others does not find much focal infection in this class of cases. He mentions a nearly fatal case of pyorrhea in which an abscess which complicated that condition had evidently been responsible.

Local Anesthesia in Every Day Conservative Practice. A. Naismith. Dental Record, February 1, 1921, xli, 2.

Intraalveolar anesthesia, which is associated in the mind with the name of Parrot, seems to the author to be the method in common use. It combines simplicity with almost positive certainty of success. Its directness and definiteness appeals to the practical mind. Parrot first makes an injection into the interdental gum to anesthetize the superficial tissues. He then by means of a small burr pierces the cortex at a point as near the apex of the tooth as possible, avoiding the mobile tissues. Then with a high pressure syringe and thick needle he gently and slowly forces the needle into the cancellous tissues. The author confines both injections to the tough part of the gum and has seen no reason to change this practice. The usual point is just below the interdental papilla. Having injected the gum he pierces the cortex with a fine spear or chisel-shaped drill, pressing it home until the hub of the needle rests against the bone. There are injected from 5 to 10 minims of 2 per cent novocain. The drug rapidly diffuses through the cancellous tissue and the anesthesia is almost invariably immediate. The author uses but one needle for the double injection and the syringe is light and small, for owing to the cancellous structure of the bone but little pressure is required. There are two drawbacks to the intraalveolar method. When the needle point enters the bone there is a slight shock, the patient becoming pale and feeling faint or oppressed. This persists as a rule but a few seconds. This reaction is usually absent in young subjects. The second drawback is some local discomfort after the anesthesia, which hardly amounts to pain. If the needle fails to enter the bone the drilling has not been thorough or a spicula of bone has blocked the needle. The latter must be withdrawn and it and the opening in the bone examined before another injection is practiced.

Relationship Between Ocular and Dental Disease. W. M. Crisp (Denver). Colorado Medicine, February, 1921, xviii, 2.

Some eminent ophthalmologists still deny the influence of dental pathologic conditions on the morbidity of the eye, for not more than 6 or 7 years have elapsed since the eye specialists first began to recognize the existence of such a causal relationship. At the present time the importance of this relationship is perhaps overrated. It is common enough to note that repair of the mouth has no beneficent action on eye affections. Cases occur, however, which show conclusively that the latter may be due chiefly to a dental factor.

Thus in the case of a woman aged 79, when first seen, there was a history of supposed chronic glaucoma dating back 28 years. For about 30 years in fact there had occurred several times annually inflammatory states of one or both eyes. The diagnosis of chronic glaucoma was clearly a mistake as shown by the subsequent history and the examination. The author learned that for a period at least as long as the eye affection there had been an infection of the right cuspid tooth. This was extracted when the woman was 81 years old and in the midst of one of the attacks of recurrent inflammation of the right eye. Two years later at the age of 83 the patient was free from eye trouble. The retrospective diagnosis was chronic relapsing keratitis due to an infected tooth. The author has also seen cases of typical trachoma (really pseudo-trachoma) subside after the removal of infected teeth and cites other cases of atypical corneal disease with the same sequence of recovery. In addition to keratitis there were cases of uveitis, iritis, conjunctivitis—all chronic and more or less atypical, in which removal of infected roots was followed by cure. In a few of these cases a traumatic factor had originally been accused, but failure to heal was clearly attributable to the state of the teeth.

Radium Injuries in the Mouth. Max Cohn. *Zahnärztliche Rundschau*. February 8, 1921, xxx, 6.

This article is a monograph of the entire subject of damage to the mouth by radium and x-rays and has a large bibliography appended. The literature begins about 1903, at which period the metal was used for cancer of the tongue, cheek and buccal cavity in general, and for tuberculosis of the hard and soft palate and gums. At an early period both radium and mesothorium were tested in alveolar pyorrhea. The majority of writers are satisfied with exhorting to caution in the use of radium and but few have reported actual accidents. Although several state generally that accidents are known to have occurred details often fail. A few give cases of necrosis of the soft parts, or perforation, or fistula. The author is certainly one of the first if not the first to report and illustrate a case of beginning sequestrum formation in the lower jaw from this cause. This was necessarily accompanied by necrosis of the soft parts—floor of the mouth and gum. The original disease was chancreoid on the inferior aspect of the tongue. Radiation was practiced for a period of five months with numerous long sessions up to 15 hours. Two sound teeth fell out as a result of the radium. As there was no longer evidence of malignant growth the treatment was changed to the x-ray. A few days after the discontinuance of radium the floor of the mouth presented gangrenous bullæ. The ganglia in the neck began to swell and the mustache and beard to fall out. The upper surface of the tongue showed destruction of the papillæ which first showed a peculiar black discoloration that discolored the saliva. Some of the teeth in the exposed area were loose, although others were fast. It is evident that radium can set up a form of superficial glossitis. An intense stomatitis from any cause may under rare circumstances cause necrosis of the jaw, so that the action of radium is not specific in this respect.

Methods of Sterilization in Dentistry. H. E. Harvey. United States Naval Medical Bulletin, April, 1921, xv, 2.

The author gives the results of some sterilizing experiments performed in the Naval Medical School at Washington to determine the qualities in this respect of the glycerine-alcohol solution. The antiseptic quality was tested on the *staphylococcus pyogenes*. New barbed pulp canal broaches were contaminated with an agar growth of this organism and the presence of the latter determined before the application of the solution. The latter was applied at short intervals to different instruments and it was found that an exposure of 10 minutes is necessary to sterilize them. Four series of tests controlled one another completely, the results being quite uniform. An omission in routine antisepsis probably often occurs from failure to sterilize the handle of the syringe used in making conduction anesthesia, etc., and the author advises that the entire instrument, including the finger grip or handle of the plunger, be immersed in the sterilization jar. Although the broaches were used in the experiment the author had in mind especially the sterilization of the anesthesia syringe and needles. There are three possible methods—total immersion, partial immersion with other means of sterilizing the balance of the instrument, and some method not involving immersion at all. An all-metal syringe without washers has been devised with a metal case which can be used in a pinch for sterilization by boiling. The case with contents is filled with water, and an accessory chamber contains alcohol which when ignited heats the water. When dental handpieces for any reason cannot be sterilized in the autoclave they may be dipped by means of forceps into denatured alcohol and the latter burned off.

Effect of Endocrine Derangement on the Teeth. F. W. Broderick (Bournemouth, Eng.) The Dental Cosmos. February, 1921, lxiii, 2.

According to the author enamel is destroyed by acid secretions and dentin by microbic action. Hence if enamel can be protected from acidity the problem of dental prophylaxis is solved. The subject for study then is limited largely to the causes of acidity. The source of the latter must be the saliva itself or the presence of fermentation—naturally of the carbohydrates—in the debris of food. This, however, takes no account of predisposition—of some quality of the enamel which sensitizes it to the action of acids. The body contains fixed lime and floating lime which must serve as a reserve supply. There is a so-called lime hunger syndrome, one symptom of which is chilblains, which may yield quickly to lime feeding but there is no fixed rule. On the other hand fixed lime can become floating lime. From the latter angle lime stored in the teeth may at times be in demand somewhere else in the body. This circulation of lime in the body is usually placed under the domain of the ductless glands. Some of these favor calcium retention, others calcium waste or elimination. Apparently they must act in concert to secure the proper balance. Our knowledge is largely limited to the result of animal experiment and there is evidence that in animals deprived of the parathyroids the enamel is

hypoplastic. Removal of the pituitary glands will sometimes retard dentition, etc. To apply our knowledge to mankind we know that the growing child is dependent on lime and if lime starvation is brought about in any way the teeth are prone to suffer. Childhood and youth is the period of caries. Next to the age factor comes the state of pregnancy in which the lime hunger of the fetus is felt in the mother's teeth, caries being common during that condition. From these predisposing causes the author passes to acid mouth especially in the predisposed to caries. The technic of estimating acidity is very complicated, including the choice of indicators. The results seem worth the trouble for they go to prove a direct connection between caries in childhood and acid mouth. He has made feeding experiments with pluriglandular extracts with the addition of lactate of calcium, using the hypodermic route. Evidence is presented in general that caries can be arrested although the teeth remain discolored. We find teeth at times with marked decay of enamel and intact dentin, although as a rule the enamel first gives way at a small spot and caries of the dentin burrows beneath it. This arrest is perhaps the consequence of a return to normal lime metabolism and equilibrium. The pluriglandular extract used by the author in its final formula was anterior pituitary 3 m, suprarenin (1-1000) $2\frac{1}{2}$ m, parathyroid $\frac{1}{10}$ gr. and calcium chloride $1\frac{1}{2}$ gr. Calcium lactate was also given by the mouth, ten grains at the time of injection. Under this treatment the calcium index increased notably while at the same time there was a marked increase in alkalinity of the saliva. These injection experiments were apparently carried out only on the author by himself.

Common Preventable Defects of Childhood. E. H. Wilkins (New Zealand)
Dental Record. February 1921, xli, 2.

In this article there are numerous references to the teeth. Studies of New Zealand school children show the remarkable frequency and coexistence of caries of the teeth, imperfect development of the jaws and palate, adenoids and enlarged tonsils and rachitic deformity of the chest. He ascribes this entire picture of morbidity to disuse of teeth from the soft quality of the food, and to deficiency of vitamins and mineral matter. There are overcrowding and malocclusion of the teeth, narrow and high palate, narrow nasal chambers and bent septum. This combined state causes mouth breathing and these various conditions react on one another in such a way as to cause vicious circles. In theory at least vigorous mastication of food hard enough to require chewing means a wide palate and wide and roomy nasal passages. Beginning with the time of weaning the child begins to chew soft, pulpy food and continues this practice during the entire period of growth. Even before this too much sucking at the milk bottle tends to narrow the jaws. Undersized jaws mean undersized muscles of mastication and we know that Nature meant these muscles to be large and well developed. Caries can only signify that teeth which quickly decay are made of poor goods and that this is due in part to deficiency in lime: but since feeding with calcium cannot remedy this condition we know that some other factor interferes with the normal

metabolism of this mineral, this being doubtless absence of vitamins. If we could eat the bone as well as the soft part of meat the teeth might benefit by it and this is true of whole cereal grains which contain vitamins and mineral matter and naturally require some chewing. Prolonged cooking certainly destroys all of the vitamins and in preserved foods, as jams, the same result follows. In a postscript the author admits his error in ignoring the molding influence of the lips and tongue in shaping the jaws while the influence of mastication in this respect may have been overrated.

Histology of Dental Caries. E. Retterer *La Revue de Stomatologie*, January, 1921, xxiii, 1.

The author studied in succession sound teeth, superficial caries and deep caries. The teeth were fixed in formol diluted with 4 or 5 parts of water, and decalcified with chlorhydric acid, and the sections were made in paraffin and of the thickness of 7 to 10 microns. The sections were stained with hematoxyline after fixation with perchloride of iron. Superficial caries is limited strictly to the enamel in which the fibers of Tomes are seen to be thicker and more closely approximated, but the characteristic change is the rarefaction of the amorphous substance in the meshes of the reticulum. The author therefore disputes the current view that the mouth acids decalcify the cement substance which unites the prisms of the enamel; for as a matter of fact this alleged cement persists longer than the other structures of the enamel. In general, teeth which are becoming carious are not so rich in hyaloplasm as sound teeth. They are unable to charge themselves with sufficient lime and the hyaloplasm becomes transformed to a granular cytoplasm. The dentine therefore becomes transparent and of course poor in lime; this reduction in mineral matter is extreme—to as little as 1 to 13 of the normal. The dentine, reduced to a granular protoplasm containing hardly a trace of lime, turns brown or black and can resist neither acids nor bacteria. The saprophytes are especially prone to attack it and cause putrefaction. The carious tooth is of course sensitive also to mechanical factors. The essential cause of caries lies in the originally poor constitution of the teeth as shown by a study of the teeth in which caries is beginning.

Surgical Prosthesis in the Operative Treatment of Tumors and Necrosis of the Lower Jaw. Real. *Revue de Stomatologie*, January, 1921, xxiii, 1.

It is more than 36 years since Claude Martin wrote his book on immediate prosthesis, and in the interval little or nothing has been added to the principles or the technic. According to this author the chief object of immediate prosthesis is to antagonize secondary deviations of the fragments of bone, and, so to speak, make the bed for permanent prosthesis. Another object is fixation of the tongue, which must be prevented from falling backward or forward, which accidents are always threatened after large resection of the mandible. A third advantage is the prevention, to a certain degree, of salivation. Martin insisted that immediate prosthesis made mastication possible.

But when all is said this author was overoptimistic as to what could be done by prosthesis. It is true that some of his patients were able to chew a few days after the first intervention. But it is the ultimate result which counts and the author is sceptical of this in cases of extensive loss of bone. The experience of the recent war did not bear out Martin's claims for permanent prosthesis based on results of immediate prosthesis. The error of Martin was in failure to discriminate between tumor and necrosis cases. The author finds that the treatment of these affections should be individualized. There is also a difference between various kinds of neoplasms in respect to temporary prosthesis. Martin and his colleagues did not of course have the aid of the x-ray, and it is just this resource which brings out the differences between tumors and necrosing osteitis, and also between the various neoplasms of the jaw. Martin laid down the dictum that restoration of form was essential to restoration of function, but the war has shown that fair function may follow very imperfect structural restoration.

The author goes into the details of immediate prosthesis after resection of the mandible for neoplasms. Of the 9 cases described by Martin at least 5 seem to have been of malignant disease. Of the five patients three could not wear the immediate prosthesis; a fourth, while doing nicely died suddenly of cerebral hemorrhage. The fifth case is reproduced in full by the author. The resection of the mandible was very wide and the piece of prosthesis was not well borne; the general state became so bad that it was removed and a wire device substituted, until after 18 months permanent prosthesis was installed. Hence, of 5 cases of presumably malignant disease 4 failed to tolerate immediate prosthesis. The 4 cases of presumably benign tumors seem to have given very good reactions to immediate prosthesis, as far as cosmetic effect goes but the author is by no means convinced as to the success of the functional result and is inclined to think that the entire series of cases indicates success from this angle. He asserts that Martin's method is absolutely contraindicated in resection for malignant growth and that it is defective in resection, especially wide ones, for benign growths. On the other hand sarcoma with myeloplaxes, although in a sense malignant, seem better adapted to Martin's method and his success seems to have been obtained largely in such cases, doubtless because of the possibility of making osteoplastic resections. In resections for necrosis Martin also obtained some good results for the same reason.

Surgical and Prosthetic Treatment of Constriction of the Jaws. Lemaitre and Apard. *Revue de Stomatologie*, January 21, 1921, xxiii, 1.

The constriction was total and the lower incisors were in contact with the alveolar margin of the superior incisors. The patient was a soldier of 37 who originally presented a small tumor in the posterior portion of the left gingivogugal groove. The growth enlarged and the clinical diagnosis was epithelioma of the left cheek, which had encroached into the above mentioned furrow and the parotid recess. Radium treatment was at once instituted and a violent reaction followed. Biopsy had in the meantime thrown doubt on the clinical diagnosis of cancer. An incision was made in the aim of giving exit to sup-

posed fluid contents. At the tumor station to which the patient was referred there were noted a swelling at the angle of the jaw, ulceration of the small incision site, total locking of the jaws as mentioned, and an ulcerated surface seen with difficulty in the buccal cavity, which gave off a fetid discharge. The surgeon making a diagnosis of necrosis of the jaw, promptly removed a large sequestrum which involved the angle of the mandible and ascending ramus. The condition was successfully treated without any loosening of the jaws. The x-ray showed the bone defect and a fibrous constriction of the masseter and pterygoid muscles due evidently to fibrous myositis. Serodiagnosis showed that the condition was one of syphilis throughout—a gumous infiltration of the ascending ramus masseter and internal pterygoid. The first step in the treatment was division of the fibrous band through the natural passages. As it was almost certain that the condition would recur of itself, a device was improvised to hold the mouth open during cicatrization and also permit of nourishment. Healing then took place without cicatricial retraction, the interval being about 12 weeks.

The Wisdom Teeth and Their Removal. Hector Polk (New York). *The Dental Digest*, January, 1921, xxvii, 1.

Illustrating the manner in which wisdom tooth pain is reflected to other portions of the dental arch, the author narrates a case in which pain was referred to the upper right cuspid. This was found to be sound. An x-ray then gave a negative result. Finally a cavity was found in the third molar, facing the distal. The tooth was found to be putrescent and considerable effort was necessary to get the patient's consent to extraction of this tooth in place of the cuspid. In all cases of pain "along the dental arch" the wisdom teeth should be examined. In regard to extraction technic for an upper wisdom tooth in normal position, the bayonet-shaped forceps is very serviceable. In removing, use lateral motion in the direction of the long axis. If the tooth is misplaced and the crown can be grasped, a simple extraction should result. If the tooth should break off at the neck the roots should be separated by a fissure burr and engine. The elevator should never be used, because of the danger of injury to the maxillary tubercle and of forcing a root into the antrum. All are agreed as to the difficulty of extracting lower wisdom teeth. The author is using the elevator more and more. When the use of forceps is indicated, luxation should be antero-posterior to avoid breaking. In using the elevator the dentist should stand behind the patient for a right extraction and near the left side for a left extraction. The point of the elevator should be inserted between the second and third molars with the flat side against the latter and the oval side against the second molar, the latter acting as a fulcrum. To loosen the tooth forward and downward motion should be used and extraction should be made in a half circle with the crown tilting towards the ramus. If there is no first molar a wedge should be made to replace it, from modelling compound. During extraction, this wedge should be held in position with the left hand.

Causes and Treatment of Prolonged Pain Following Extraction and Oral Surgical Operations. B. B. Machat (New York). *The Dental Outlook*. March, 1921, viii, 3.

The author first distinguishes between preoperative, operative and postoperative pain. Naturally the latter may represent the persistence of preoperative pain, as in the case of inflammatory affections especially of the peridental structures. It is by no means necessary to operate in such cases to relieve the pain, which can usually be assuaged by palliative measures or scariification. Only exceptionally must the tooth come out and then under general anesthesia. Nevertheless extraction means that the cause of the particular exacerbation of pain is removed and that the focal infection has been eliminated. On the other hand extraction should be followed by the use of the curette and it is well to do this act in a second stage, after the tissues have become quiet. In such a case general anesthesia will prove unnecessary, and indeed is for several reasons undesirable.

Aside from this type of case with acute, diffuse inflammation of the peridental tissues causing preoperative pain, conduction anesthesia should be practiced. Postoperative pain in these cases is due to some defect in the anesthetic or the technics. The solution to prevent this kind of pain must be isotonic. Technical errors causing postoperative pain are associated chiefly with infiltration anesthesia.

Under the head of exodontia the author, who makes extensive use of the elevator, states that it sometimes causes after-pain. The most difficult extraction is encountered in removing the mandibular first molar from an unbroken arch, especially when the seat of chronic infection or when the roots are long and ribbon shaped. There should be no attempt to extract whole. The crown is cracked off and a buccal flap operation performed. A portion of the alveolar process is chiselled away to admit an elevator between the roots. A slight turn of the flat instrument will split the roots and by using the septum as a fulcrum these may be separately lifted out. This procedure prevents fracture of the roots and injury to the nearby teeth.

The increase of surgical exodontia at the expense of ordinary use of the forceps means more after-pain. The latter should not occur in over 2 per cent of all cases. The dressings may be at fault by preventing drainage. There is a form of delayed pain which appears on the fourth or fifth day, from the stretching of the mucosa tightly over the irregular, angular, hard substratum. In these cases it may be necessary to block the nerve, retract the flaps and trim the projecting or ragged alveolus. Another cause of after-pain is trauma of an adjacent tooth, as when the elevator has been too vigorously used. The pulp of such a tooth is tested and if devitalized the tooth must be opened and the dead pulp removed. In any case the occlusion should be reduced and ligation of the tooth wherever possible, plus the ice pack will afford relief. Other causes of pain are mentioned, as neuralgia following extraction of all the teeth, injury to sensory nerves, infection ending in necrosis, dry socket so-called, etc.

Cholesteatomas of the Jaws. H. Rodier (Paris). *Revue de Stomatology*, December, 1920 xxii, 12.

The author reports seven cases of this rare formation, situated in the upper jaws, alveoli, gums, incisor region, etc. The characteristic finds were signs of old inflammation, cellular infiltration with structure suggestive of tuberculosis, crystals of cholesterine infiltrating the tissues, etc. Evidently there is an inflammatory process which is subacute or chronic and occasionally acute. The cholesterin tends to accumulate in long fissure-like spaces. The author agrees with Roussy in the belief that there is no genuine neoplastic process, but instead an inflammatory pseudotumor. The genus to which such formations belong is the granuloma, as exemplified in the gumma, tubercle, exuberant granulation, the sporotrichoma, etc. The presence of cholesterine is only an epiphenomenon—a type of fatty degeneration. The word cholesteatoma may be retained but should not indicate that the condition is neoplastic. At best the condition is a curiosity and moreover cannot be diagnosticated from its clinical history and symptomatology, without resort to the microscope. On the other hand in 30 clinical cases of tumor in these localities in which the author expected to find cholesterin the latter was absent in all but one. A positive find, then, comes in the nature of a surprise. The formations which are apt to turn out to be cholesteatomas are termed clinically granuloma, pseudocysts, proud flesh and the like; but, as already stated, it is only exceptionally that these formations contain cholesterine.

The Impacted Lower Third Molar. C. Edmond Kells (New Orleans). *The Dental Cosmos*, February, 1921, lxiii, 2.

The author's original operation for removing impacted lower wisdom teeth has undergone continuous modification and for the past two years the changes have been radical, in the sense that the postoperative stage has been largely eliminated. After-pain is now regarded as due to the heat caused by cutting through the dense enamel and dentin, and to ragged edges of the socket or splintering the margins of the same. To eliminate the heat of the burn the operation is done under a stream of iced distilled water. An elaborate apparatus for this maneuver is described and illustrated. Five grains of bromural are taken 1 to 2 hours before the operation. Skiagraphs have been used by the author since 1903 and study of them is indispensable. To secure a dry operating field with elimination of hemostasis an aspirating outfit is combined with the refrigerating apparatus and all blood is at once aspirated. The operative field is now cleansed by a special apparatus which flushes the mucosa and extracts all extraneous matter from between the teeth. The old principle of the minimum of injury to the hard and soft tissues is still active. A long flap is made along the lingual border and retracted buccally. The aspirating machine sucks up the blood as fast as it collects. The author has recently devised a flap-holder to take the place of the old retractor, but it is as yet far from perfected. Proctor of Boston has improved on the author's flap so that there is a better view of the operating field. If necessary to go through bone

to get to the tooth, chisels are used. A nick is then made in the enamel to introduce the drill but the carborundum knife used for this purpose should not be used on bone. The crown is then drilled preparatory to cutting the tooth in two, the latter being done by special burrs. This step of the operation is hazardous because several accidents could happen—either one of the plates may be cut too deeply or the inferior dental nerve injured. Refrigeration is begun with the first contact of the carborundum. The suction apparatus and flap-holder must be functioning perfectly. The burrs and field must be kept cold throughout the drilling. As soon as the tooth is divided the anterior portion usually comes away readily. The remaining segment comprises the root and if this be single and conical it can usually be released by driving wedges between the tooth and socket. Under other circumstances chiseling may be required to cut away the bone and enlarge the socket. Driven wedges or elevators may then be used to release the root. When much force is required forceps rather than the elevator should be used. The cavity is then curetted with Kingsley scrapers and the margins are rounded off and smoothed, the flap restored and the socket irrigated with the flourishing apparatus. One or at most two sutures are required. In most cases the operation is of course done under local anesthesia.

Treatment of Deciduous Teeth. A. L. Beischer. *Australian Journal of Dentistry*, November, 1920, xxiv, 9.

The author first cleans the teeth and then applies silver nitrate to the cavities of the incisors, doing nothing further, since the teeth will soon be shed. In the case of the canines the blackened dentine can usually be removed with hand instruments and amalgam or cement fillings put in. In the molars the use of the engine is more common to expose the cavities, using hand instruments for excavation. If the child is afraid of the engine for completing the excavation an oxyphosphate of copper cement will often last quite a long period. For devitalizing the author prefers arsenic. He mentions the chalky type of tooth in which, owing to the painless character, caries may become universal before the dentist is seen. Many of the teeth may be too far gone for filling while others may bear filling with copper amalgam, which however, is very unsightly. Extraction in a young child is always trying, despite the character of its training. For one or a few teeth the author recommends the ethyl chloride spray as an anesthetic. Cotton is soaked in the vapor and laid against the teeth. There is a brief loss of consciousness sufficient for the operation. If there is much extraction to be done the author allows only the anesthetist to appear on the scene, in order not to lose the child's confidence. The child does not see the operator before or after the extraction. While about it he would pull every putrescent tooth, although this is often repellant to do. For some years he has made it a practice to leave only living teeth. In conclusion he states that without nitrate of silver and copper amalgam he would not care to practice dentistry on children.

Caries and Pregnancy. Gerson. *Zahntechnische Rundschau*, January 16, 1921, xxx, 3.

Frieda Gerson, a Swiss dentist, examined the teeth of 50 pregnant women with 50 nonpregnant, nulliparous controls the age period being from 20 to 30 years. Gestation in most of the women was at the second to the fourth month. Six months later she investigated the 100 women a second time. The progress of the caries was recorded in all and a distinction was made between superficial and deep caries. Well filled teeth counted as sound teeth. The number of extractions was also noted. Of the nulliparous women 22 showed superficial caries of the incisors against 30 of the pregnant women; the latter included 9 with carious canines while none of the nonpregnant showed implication of these teeth. The figures for premolars were pregnant women 26, nonpregnant 9 and for molar teeth pregnant 21, nonpregnant 11. The figures for deep caries (involvement of pulp) showed the same parallel. The figures for pregnant women were incisors 10, canines 4, premolars 15, molars 16. The figures for the controls were incisors 1, canines 2, premolars 6 and molars 7. Extractions during the observation period were as follows: two pregnant women had incisors extracted as against no controls; in neither series were canines or premolars extracted. Ten pregnant women had molars extracted as against 2 controls. Coles' statement in 1874 that the premolars suffer most from childbearing is borne out. In the figures for molars it must be borne in mind that some women had lost their six year molars before the observation began. If pregnant and nonpregnant women have the same number of good teeth to begin with the influence of pregnancy on caries is readily seen at a later period—in the author's figures six months.

Hypersensitive Dentine. Wm. Wannack. *Zahntechnische Reform*, November 21, 1920, xxiv, 47.

The term is used to indicate a painful reaction on the part of the exposed dentine of a living tooth to mechanical, thermal, chemical or electrical irritation. The reaction is obtained only in this manner. The exposure of the dentine may be due to a variety of causes, as failure of the protective enamel, caries, an injury, or retraction of the gum from the neck of the tooth. The author belongs to those who deny the existence of nerve fibres in the dentine. It is therefore necessary to suppose that physicochemical changes of some sort affect the protoplasm of the dentine tubules. The action of sugar in causing sensitiveness is attributed to increase in the surface tension. Some inorganic salts have the same property while acids, bases and the great majority of organic substances diminish the tension. Merely chemical influences alone are insufficient to produce the phenomenon. Inhibition, concentration of solutions and other physical phenomena are active. Thus the protoplasm in the dentine tubules being of colloidal structure, exposure of the dentine to the mouth fluids leads to inhibition and increase of surface tension. There can be no change of concentration in the tubules and there is instead a transmission of pressure in all directions. The perception of the pain is really in

the pulp, in Boll's plexus. There is no pain in the enamel, when the drill enters but when the contact point of the enamel and dentine is reached, severe pain is felt. This is best explained by the heat generated by the burr in addition to the pressure. The surface tension in the tubules is increased as the result. After the dentine has become calcified in advancing years pain does not result under these circumstances. The article will be continued.

Peridental and Periapical Surgery. Arthur Zentler (New York). *Dental Cosmos*, February, 1921, lxiii, 2.

The first evidence of peridental mischief is a gingivitis which may be superficial, hemorrhagic or suppurative, the latter corresponding to pyorrhea alveolaris. The author, for the latter condition, prefers a flap operation to sealing, done under novocain conduction anesthesia. In periapical with or without peridental disease the same degree of thoroughness is indicated. A periosteal flap is lifted, retracted and held in place by an assistant. If the alveolar bone which interposes has been destroyed there will be no need of chiselling—otherwise the apex is exposed with the chisel and, if the tooth is fairly solid in the alveolus, amputated. If, however, the tooth is loose, the chisel should not be used to remove the apex but instead the engine and burr. After chiselling, the burr is used to smooth the amputated root end. The curette or knife is then used on the diseased soft tissues about the root and the alveolar plate is chiselled away from the denuded roots which are then themselves curetted: The flap is then curetted on its inner aspect if necessary, before reposition. After swabbing the periapical cavity with iodine, 50 per cent, the flap is finally sutured. In order to obtain satisfactory results from this combined peridental and periapical operation no particle of diseased tissue can be left behind. As the teeth are often left with scant support ordinary orthodontic brass wire ligatures may be applied for 4 to 6 weeks. More elaborate fixation is not desirable.

The Recognition and Treatment of Infectious Conditions Involving the Region of the Third Molar. Harry Bloch (St. Louis). *The Dental Cosmos*, February, 1921, lxiii, 2.

The conditions referred to occur chiefly in impacted wisdom teeth. Inflammatory reactions in the bone are either constructive and progressive or suppurative and destructive. In the former condition the bone hardens before the eruption of the tooth is completed and the latter becomes encapsuled until the new bony tissue has been absorbed. The tooth may or may not be prevented from normal eruption under these circumstances so that impaction may be a result, complete or only partial. Partial impaction may set up a variety of symptoms of varying severity, both local and reflex. In infection the formation of false membrane and sloughing may occur, or ulceration with or without abscess formation or finally progressive necrosis of the alveolus. One of the more serious symptoms is false ankylosis of the temporomaxillary joint. The author says little of the assertion that maleruption of the wisdom tooth is no

more or less than a clinical expression of Vincent's disease, a view advanced during the war, when an epidemic of Vincent's disease in young soldiers exactly simulated the wisdom tooth syndrome. He merely states that in the majority of cases the double organisms of the disease in question are present in large numbers but mentions that ordinarily they are no more than saprophytes. However, he concedes that these organisms may set up periodontal gingivitis, the other alterations developing secondarily. The ulceromembranous lesions about the tooth suggest this etiology. The treatment is chiefly operative but limited to incision and drainage when this is obviously indicated. Radical operation is hardly mentioned and apparently seldom indicated.

Wisdom Tooth Accident in a Man Aged 77 Years. Delguet and Despin (Bordeaux). *Gazette hebdomadaire des sciences médicales*. March 6, 1921, xlii, 10.

For three months the subject had complained of swelling at the angle of the left jaw and the mandible was partly locked. Two incisions along the margin of the jaw brought away pus. When the authors saw the patient he presented a partly cicatrized wound which gave exit to pus. The wound reposed on a thickened substratum at the angle of the jaw which was ligneous in consistency. The indurated area extends to the external auditory meatus and zygomatic process. Examination showed no trace of the large molar teeth. There was, however, an anomalous condition at the site of the third molar which, had it not been for the advanced age, would have been regarded as a wisdom tooth inclusion. The diagnosis of the latter was actually made from a röntgen plate. The tooth was extracted through the natural passage by means of the elevator, using the finger as a guide. The operation, done under local anesthesia, proved to be an easy matter and was completed by the use of the curette. The experience was a rare one. The authors know of four similar cases in which the age of the patient varied from 60 to 76 and can find but one in which the age was greater than that of their own subject. In this case, reported by Pont of Lyon, the age was 84, which is believed to be the record for France. In regard to the mechanism of these cases it must either be purely mechanical or infectious. The presence of an infectious component seems necessary in these cases, although there is naturally a mechanical factor which prolongs the eruption of the tooth and facilitates the infection of the follicular sac.

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EDITORIALS

Occlusion of Teeth in Relation to the Temporomandibular Articulation

IN THIS issue of the *International Journal of Orthodontia and Oral Surgery* we publish an able article by Doctor Richard Summa entitled "Occlusion of Teeth in Relation to the Temporo-Mandibular Articulation." This article contains much truth. Nevertheless, some statements are liable to be misinterpreted in such a manner as to lead to considerable misunderstanding.

Doctor Summa states that "Every one who has attempted to correct malocclusions involving a correction of the mesio-distal relation of the molars, * * * has met with more or less disappointment, usually more." We are aware of the fact that a great many of the older orthodontists have stated during the last few years that the treatment of distocclusion or postero-occlusion, as it should be called, is very often associated with unsatisfactory results. We believe the majority of these failures and disappointments have been due

to the fact that the operator has attempted to change the position of the condyle, thereby changing the temporo-mandibular articulation, rather than to leave the condyle in its normal position.

Doctor Summa states that "The dissections and study of the temporo-mandibular articulation conducted by Professor H. J. Prentiss and the writer, confirmed the rational assumption that not only the loss of teeth, but also the occlusion of the teeth is recorded in this joint." This statement is unquestionably correct, but the trouble lies in the fact that some men will interpret the record in this joint to signify that the condyle can be changed as regards its position rather than as regards its shape. There is no doubt of this fact. It is proved in the study of comparative dental anatomy that the occlusion of the teeth and the shape of the teeth absolutely control the shape of the condyle and glenoid fossa, but that does not signify that the occlusion of the teeth or the correction of malocclusion, by the so-called, "jumping the bite," or attempting to shift the mandible forward, is going to produce a change in the position of the condyle. Therefore, Doctor Summa's statements, while correct, may be misleading to some who have attempted to misinterpret Professor Prentiss' investigations as being proof that the position of a condyle could be changed, which is a statement that Professor Prentiss has never made in conversation with us, and which statement, also, Doctor Summa does not make.

In changing the antero-posterior relation of the arches, such treatment will bring results, which will change the shape of the condyle and glenoid fossa, but not the position, owing to the ligaments which will remain the same. Therefore, as a result of this knowledge, and as a result of the investigations carried on by Dr. A. LeRoy Johnson, given in a paper which he read before the American Society of Orthodontists in Atlantic City, we have no reason to believe at the present time, that, as a result of orthodontic treatment, the condyle can be made to assume a different position from that of a normal and anatomic relation for that particular individual. We, therefore, have to interpret these changes practically the same as Doctor Summa has: that there may be a change in the shape of the condyle and glenoid fossa, but no change as regards anatomical position antero-posteriorly.

Who Should Control Dental Education

DURING the last few years various attempts have been made to regulate and control dental education. Some of these movements have originated from the proper sources, while others have been the result of agitation which has a questionable bearing upon the problems of dental education. With these various movements originating from different sources, it is well to consider what group of men is best qualified to control dental education.

As we review the situation, we find the National Association of Dental Faculties has made some suggestions, the National Association of Dental Examiners has also attempted certain so-called "reform movements," and the National Dental Association has been active in dental education. Be-

sides these three bodies, we find a fourth group composed of so-called "university schools," which seem to think they should be allowed to control dental education because of their university affiliations.

In addition to these above-named organizations, we also find that the medical profession has taken upon itself the privilege of suggesting what the education of the dentist should be, and how it should be carried out.

It would seem that these movements would be sufficient to regulate the needs of dental education, but we find another self-appointed group of individuals who do not belong to any of these organizations, who are attempting to control dental education, as a result of their self-appointed authority. These men have been attracted to the dental field because of the importance which it holds at the present time, and deem they are qualified to make suggestions because of their financial backing.

In asking the question again as to who is qualified to control dental education, it is well to analyze some of these movements. In the first place, the medical profession can be eliminated because they are not familiar with the needs of the dental profession, or the needs of the general public from a dental standpoint. The place which the dental profession has attained up to the present time has been the result of activities within the dental profession itself. The first dental school organized was formed because the medical schools would not recognize the demand for dental education. If the medical profession did not recognize the need of dental education in the past, and not having familiarized themselves with the conditions at the present, they certainly can be eliminated.

Therefore, we believe that any movements to regulate dental education should be made by men in the dental profession who are qualified to fill these positions. Because this is the opinion of many, the National Dental Educational Council was organized, which consists of men selected from the National Dental Association, the National Association of Dental Examiners and the National Faculty Association. It is our belief that the National Educational Council contains a group of men best suited to deal with dental education. We will admit they may make mistakes, probably have made mistakes, but they are certainly better qualified than any of the other group we have considered.

In regard to the Association of University Schools, or whatever they call themselves, they are composed of a few men who have been carried away along idealistic lines, which are not practical. If dental education is predominated by their desires, the dental profession will suffer and the public will suffer, because these men are not practical dentists. Their ideas rank high from an educational standpoint, but are not productive of the best results for the public.

In regard to the last group of men, namely, those of financial standing who have made suggestions regarding dental education, we believe they are absolutely unqualified, and we can see no reason why they should enter the dental field along educational lines, except that they have been attracted by the prominence which dentistry has attained at the present time, and are a

group of individuals who desire to be in control of everything that is of importance. One of these men who claims to represent a large financial organization has taken it upon himself to attempt to suggest reforms in dental education. These men have never been dental educators, and the only reason they have become interested in dentistry at the present time, is the growth of the profession during the last few years.

If dentistry has been able to make a name for itself that attracts these self-styled "educators," and as that name has been made through the efforts of the dental profession, we believe that the greatest good will be accomplished by leaving dental education in the hands of the dental profession.

We furthermore believe that the dental profession is best qualified to solve its own problems without the aid of men who are not familiar with them.

Lincoln Life Sketches*

"**L**INCOLN LIFE SKETCHES" is the title of a little volume in verse and prose. The book is unique in that it contains a good many poems each one of which describes some incident in the life of Lincoln. The occasion for writing the verse, historical reference, and so forth, is given in a series of prose notes, one for each poem. The book is very pleasingly arranged. The different incidents in the life of the man who endeared himself to all the people are taken up in order from his birth to his death.

The book is of special interest to the dental profession because it is the work of Dr. Garret Newkirk, who is loved and respected by the dental profession.

Besides being a pleasing book for the dentist, it is an excellent work for the reception room of any professional man. The author states that by sending direct to him at Pasadena, California, any member of the profession can obtain an autographed copy.

**Lincoln Life Sketches*. By Dr. Garret Newkirk, 1921, Duffield & Co. Price, \$1.25.

ORTHODONTIC NEWS AND NOTES

The editors desire to make this department a permanent feature of the *Journal*, but in order to do so must have the full support of the orthodontic profession throughout the country. We would deem it a great favor if our subscribers and readers would send in such announcements as might be of interest to the profession.

Société Française d'Orthopédie Dento-Faciale

On May 22d was founded the French Society for Dento-Facial Orthopedia, which, as its name implies, is devoted to the study and advancement of orthodontia.

Dentists living *outside* of France may be admitted as *Associate* members, provided they take an active interest in that specialty. Their admission may be obtained by submitting an application blank signed by two members of the Society; the application should be accompanied by the amount of fifty francs; the admission is definitive only after a formal vote of the Society.

Officers for the coming year are as follows:

President, Dr. J. T. Quintero, 1, Quai Jules Courmont, Lyon.

Vice-President, Dr. E. Gallavardin, 50, Rue de la République, Lyon.

Secretary, Dr. B. de Nevreze, 20, Rue de Mogador, Paris, 9.

Treasurer, Dr. E. Hollande, 6, Rue de Boigne, Chambéry, Savoie.

Editor, Dr. P. Ollagnier, 15, Place Hotel de Ville, Saint Etienne, Loire.

Next meeting will take place in Paris at Christmas time, 1921. All interested in orthodontia are cordially invited to communicate with Dr. B. de Nevreze, Secretary, at Paris, 9, No. 20, Rue de Mogador.